

IX.—Stalk-eyed Crustacea Malacostraca of the Scottish National Antarctic Expedition. By the Rev. Thomas R. R. Stebbing, M.A., F.R.S., F.L.S., F.Z.S., Hon. Fellow of Worcester College, Oxford. *Communicated by Dr J. H. ASHWORTH.*

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[Plates XXIII.—XXXII.]

As the *Scotia* was engaged in marine research throughout the whole of its long voyage out and home, it was only to be expected that Antarctic specimens would form but a small fraction of the result. In like manner, as several of the halting-places, such as the Cape of Good Hope and the Falkland Islands, had been visited by many keen naturalists on earlier occasions, it was quite likely that species of the group with which this report is concerned would have been in numerous instances already observed. Accordingly, out of some fifty species here discriminated, only six claim to be new, and not more than ten can be regarded as Antarctic or sub-Antarctic in their place of capture. In the vast extension, however, which marine zoology has for some time past been receiving, some retardation in the stream of discovery may not be unwelcome to the systematist. Familiar forms which would otherwise amply repay a thorough reinvestigation are apt to be thrust on one side, when striking novelties are for ever appealing to be introduced. This expedition, like others before it, affords fair evidence that the Macrura are both abundant and varied in great depths of the ocean. But only too often the frailty of their fabric leaves them in a tantalisingly mutilated condition when they reach the surface.

## CONSPECTUS OF THE SPECIES.

### BRACHYURA.

#### *Brachyura genuina.*

#### Tribe OXYRRHYNCHA.

#### Family INACHIDÆ.

*Achæopsis thomsoni* (Norman), Gough Island, 40° 20' S., 9° 56' W.

*Coryrhynchus algicola*, n. sp., 18° 24' S., 37° 58' W.

*Eurypodius latreillii*, Guérin, Falkland Islands, and Burdwood Bank, 54° 25' S., 57° 32' W.

Family MAMAIDÆ.

*Macrocaloma concavus*, Miers, 18° 24' S., 37° 58' W.

Family PARTHENOPIDÆ.

*Lambrus verrucosus*, Studer, off Pyramid Point, Ascension Island.

Tribe CYCLOMETOPA.

Family XANTHIDÆ.

*Xanthodius parvulus* (Fabricius), Porto Grande, St Vincent.

Family PORTUNIDÆ.

*Lupa sayi*, Gibbes, from Gulf weed, Sargasso Sea.

Family CORYSTIDÆ.

*Nautilocorystes ocellatus* (Gray), entrance to Saldanha Bay, South Africa.

Tribe CATOMETOPA.

Family GONEPLACIDÆ.

*Goneplax angulatus* (Pennant), off Dassen Island, near Saldanha Bay, South Africa.

*Pilumnoplax heterochir* (Studer), Gough Island, 40° 20' S., 9° 56' W.

Family GRAPSIDÆ.

*Grapsus maculatus* (Catesby), St Helena, St Vincent, and Ascension Island.

*Cyclograpsus punctatus*, Milne-Edwards, False Bay, South Africa.

*Planes minutus* (Linn.), from Gulf weed, Sargasso Sea.

*Plagusia capensis*, de Haan, Saldanha Bay and Cape Town.

*Percnon planissimus* (Herbst), Porto Grande, St Vincent.

Family GECARCINIDÆ.

*Gecarcinus lagostoma*, Milne-Edwards, Ascension Island.

Family HYMENOSOMATIDÆ.

*Hymenosoma orbicularis*, Desmarest, Saldanha Bay, South Africa.

*Halicarcinus planatus* (Fabricius), Falkland Islands and South Orkneys.

Tribe OXYSTOMATA.

Family CALAPPIDÆ.

*Mursia cristimanus*, de Haan, off Dassen Island, Saldanha Bay, South Africa.

**Brachyura anomala.**

## Family DROMIDÆ.

*Dromia dormia* (Linn.), 48° 06' S., 10° 05' W.*Dromia* sp. ?, Saldanha Bay, South Africa.*Pseudodromia latens*, Stimpson, Saldanha Bay, South Africa.

## Family LATREILLIDÆ.

*Latreillia elegans*, Roux, off Pyramid Point, Ascension Island.**Macrura anomala.**

## Tribe PAGURIDEA.

## Family LITHODIDÆ.

*Lithodes antarcticus*, Jacquinot, Burdwood Bank, 54° 25' S., 57° 32' W.*Paralomis granulatus* (Jacquinot), Burdwood Bank, 54° 25' S., 57° 32' W.

## Family PAGURIDÆ.

*Pagurus arrosor* (Herbst), Cape Town.*Pagurus calidus*, Risso, Ascension Island.*Eupagurus forceps*, Milne-Edwards, Falkland Islands.*Eupagurus modicellus*, n. sp., Pyramid Point, Ascension Island.*Calcinus talismani*, A. Milne-Edwards and Bouvier, Porto Grande, St Vincent.

## Tribe GALATHEIDEA.

## Family GALATHEIDÆ.

*Munida subrugosus* (White), Falkland Islands.*Munida gregarius* (Fabricius), juv., Falkland Islands.

## Tribe HIPPIDEA.

## Family ALBUNEIDÆ.

*Albunea guerinii*, Lucas, St Helena.**Macrura genuina.**

## Tribe SCYLLARIDEA.

## Family SCYLLARIDÆ.

*Scyllarides elisabethæ* (Ortmann), off St Helena.

## Family PALINURIDÆ.

*Jasus lalandii* (Milne-Edwards), Saldanha Bay, South Africa.

## Tribe PENÆIDEA.

## Family PENÆIDÆ.

*Gennadas kempfi*, n. sp., 39° 48' S., 2° 33' E.*Gennadas parvus* (?), Bate, 48° 00' S., 9° 50' W.

## Family LEUCIFERIDÆ.

*Petalidium foliaceus*, Bate, 48° 00' S., 9° 50' W.

## Tribe CARIDEA.

## Family PALÆMONIDÆ.

*Leander squilla* (Linn.), Porto Grande, St Vincent.*Leander affinis* (Milne-Edwards), Saldanha Bay, South Africa.*Leander tenuicornis* (Say), from Gulf weed, Sargasso Sea.

## Family HIPPOLYTIDÆ.

*Hippolyte acuminatus*, Dana, from Gulf weed, Sargasso Sea.*Latreutes fucorum* (Fabricius), from Gulf weed, Sargasso Sea.*Nauticaris brucei*, n. sp., Gough Island, 40° 20' S., 9° 50' W.*Nauticaris magellanicus* (A. Milne-Edwards), Falkland Islands.

## Family PASIPHÆIDÆ.

*Phye scotiæ*, n. sp., 68° 32' S., 12° 49' W.; 71° 22' S., 16° 34' W.*Phye rathbunæ*, n. sp., 48° 00' S., 9° 50' W.

## Family NEMATOCARCINIDÆ.

*Nematocarcinus lanceopes*, Bate, 71° 22' S., 16° 34' W.; and (?) 39° 48' S., 2° 33' E.

## SCHIZOPODA.

## Order MYSIDACEA.

## Sub-order LOPHOGASTRIDA.

## Family EUCOPIIDÆ.

*Eucopia* sp., 39° 48' S., 2° 33' E.

## STOMATOPODA.

## Family SQUILLIDÆ.

*Squilla armatus*, Milne-Edwards, off Dassen Island, South Africa.

*Lysioerichthus edwardsii* (Eydux and Souleyet), juv., 19° 59' N., 22° 34' W.

Though not properly coming within the scope of this report, the occurrence of the following species may for convenience' sake be mentioned here:—

*Bopyrina latreuticola* (Gissler), from Gulf weed, Sargasso Sea.

*Lanceola æstivus*, Stebbing, 68° 32' S., 10° 52' W., surface.

*Nebalia bipes* (Fabricius), Saldanha Bay, South Africa, 25 fathoms.

## BRACHYURA.

## Brachyura genuina.

## Tribe OXYRRHYNCHA.

The classification here adopted is substantially the same as that used in the General Catalogue of South African Crustacea, to be found in the *Annals of the South African Museum*, vol. vi. part iv., issued in 1910.

## Family INACHIDÆ.

Genus *Achæopsis*, Stimpson.

1857. *Achæopsis*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. ix. p. 219.  
 1873. *Dorynchus*, Norman, in Wyville-Thomson's *Depths of the Sea*, p. 174, fig. 34.  
 1880. *Lispognathus*, A. Milne-Edwards, *Études Crust. rég. Méxicaine*, p. 349.  
 1886. *Achæopsis*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 18.  
 1886. *Lispognathus*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 27.  
 1886. „ Perrier, *Explorations sous-marines*, p. 298.  
 1893. *Achæopsis*, Ortmann, *Zool. Jahrb.*, vol. vii. p. 36.  
 1910. „ Stebbing, *Annals S. Afr. Mus.*, vol. vi. part iv. p. 285.  
 1910. *Dorynchus*, Stebbing, *Annals S. Afr. Mus.*, vol. vi. part iv. p. 285.  
 1911. *Achæopsis*, Rathbun, *Tr. Linn. Soc. London*, vol. xiv. part ii. p. 247.

MIERS states that *Achæopsis* is distinguished from *Inachus* "merely by having the postocular as well as the præocular spine distinctly developed, and by the more or less falciform dactyli of the three posterior ambulatory legs." From *A. spinulosus*, Stimpson, 1857, he says that his own *A. güntheri*, 1879, is distinguished "by having but a single very long perpendicular spine on the gastric region." Like these, *A. superciliaris*, Ortmann, 1893, has the rostrum not deeply divided. From *Inachus* and *Achæopsis* MIERS considered *Lispognathus* "distinguished by the well-developed rostral spines." For that genus PERRIER notices as also characteristic the long slender ambulatory legs. Miss RATHBUN, however, in 1911, without discussion, sinks *Lispognathus*, and by inference also *Dorynchus*, as synonyms of the earlier *Achæopsis*.

The generic name *Dorynchus* depended not on a definition but on the dorsal view of a specimen. The word *Lispognathus*, signifying "a smooth jaw," is not very appropriate for NORMAN'S species, in which the large third joint of the external maxillipeds is well studded with tubercles. Further, it has been shown by DOFLEIN that in respect of length and divergence the rostral spines of *Dorynchus thomsoni* are very variable, so that its removal to *Achæopsis* is made the less difficult, and two rival claimants to the generic name may conveniently be dispensed with.

*Achæopsis thomsoni* (Norman).

1873. *Dorynchus thomsoni*, Norman, *Depths of the Sea*, p. 174, fig. 34.  
 1880. *Lispognathus furcillatus*, A. Milne-Edwards, *Crust. Mexic.*, p. 349, pl. xxxia. fig. 4.  
 1886. *Lispognathus thomsoni*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 28, pl. v. fig. 2.  
 1886. " " Perrier, *Explor. sous-marines*, p. 298, fig. 218.  
 1900. " " A. Milne-Edwards and Bouvier, *Crust. Decap. "Travailleur-Talisman,"*  
 p. 148, pl. iii. fig. 8, pl. xxi. figs. 8-14.  
 1904. " " Doflein, *Ergebn. Deutschen Tiefsee-Exp.*, vol. vi. p. 75.  
 1908. " " Hansen, *Ingolf-Exp.*, "Crust. Malac.," vol. iii. part ii. p. 11.  
 1910. *Dorynchus thomsoni*, Stebbing, *Annals S. Afr. Mus.*, vol. vi. part iv. p. 286.  
 1911. *Achæopsis thomsoni*, Rathbun, *Tr. Linn. Soc. London*, vol. xiv. part ii. p. 247.

A. MILNE-EDWARDS and BOUVIER in 1900 still regard *L. furcillatus* as specifically distinct (*loc. cit.*, p. 148), and on pp. 151, 152 (twice by a slip calling it *L. furcatus*) say that "*L. thomsoni* is distinguished from *L. furcillatus* by the more slender form of the earapae, narrow front, rostral spines less divergent, spines of earapae more marked." DOFLEIN with ample material decides that the differences are based on a young specimen. Miss RATHBUN says of an adult male example taken at Seya de Malha from a depth between 300 and 500 fathoms: "This example has parallel horns about a quarter as long as remainder of earapae. It differs from typical specimens in having the anterior gastric and anterior branchial spines obsolete or reduced to low tubercles. The species is very close to *A. spinulosus*, Stimpson (*Smithson Misc. Coll.*, xlix., 1907, p. 21, pl. iii. figs. 5, 5A), which has shorter legs, described as minutely spinulous above, but there is no indication, in description or figure, of the terminal spine on the merus joints. *A. spinulosus* is an inhabitant of shallower water (10 fathoms in Simon's Bay, Cape of Good Hope)." As suggested above, the conspicuously long legs of *A. thomsoni* seem to separate it decisively from the other species of the genus. But if *A. spinulosus* has anything like the variability established for *A. thomsoni*, the validity of *A. güntheri* must be regarded as resting on a very insecure foundation.

The *Scotia* specimens have a denticle at the middle of each of the divergent rostral horns and a larger subdistal one visible from below. The eyes have a tubercle on the peduncle and another subdistal on the corneal portion. In the first antennæ the third joint of the peduncle is oval, wider than the preceding joint; the principal flagellum carries numerous filaments. The palp of the mandibles

appears to be membranous, the first joint scarcely distinct from the second, the third joint carrying two or three setæ. In the third maxillipeds the inner margin of the third joint is finely but irregularly denticulate, the surface tubercles not closely set. The eggs of a small female are numerous, not very small.

*Locality*.—Gough Island, lat. 40° 20' S., long. 9° 56' 30" W.; depths 75 and 100 fathoms; April 21–23 and 24, 1904.

The extraordinary distribution of this species has been noted by several authors, extending as it does from the Faroes to the West Indies, the Cape of Good Hope, Australia, and the Indian Ocean, with depths varying from 106 m. to 1326 m. Fuller details are given by MILNE-EDWARDS and BOUVIER, and by DOFLEIN.

Gen. *Coryrhynchus*, Kingsley.

1860. *Podonema* (preocc.), Stimpson, *Ann. Lyceum N.H. New York*, vol. vii. p. 19.  
 1870. „ Stimpson, *Bull. Mus. Comp. Zoöl.*, vol. ii. p. 126.  
 1879. *Podochela* (part), A. Milne-Edwards, *Miss. Sci. Mexique*, "Crust.," part v. p. 189.  
 1879. *Podonema*, Miers, *J. Linn. Soc. London*, vol. xiv. No. 79, p. 643.  
 1879. *Coryrhynchus*, Kingsley, *Pr. Ac. Sci. Philad.*, p. 384.  
 1886. „ (subgen.), Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 11.  
 1900. „ (subgen.), Young, *West Indian Stalk-eyed Crust.*, p. 13.  
 1901. *Podochela* (part), Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 53.

The peculiarity of an almost circular rostrum in species which otherwise clearly belong to the Oxyrrhyncha or sharply rostrate crabs may be taken to justify the separation of the genus from its near ally *Podochela*.

*Coryrhynchus algicola*, n. sp.

Plate XXIII.

This new species is approximate to *C. riisei* (Stimpson), 1860, and *C. spatulifrons* (A. Milne-Edwards), 1879. It agrees with the latter in the short broad form of the rostrum, the former being distinguished from both by having the rostrum longer and narrower. On the other hand, the more pronounced angles of the distally widened fourth joint in the third maxillipeds here agree with *C. riisei*, and not with *C. spatulifrons*. In both of those species the fingers of the chelipeds are described by the French author as finely denticulate, and he figures those of his own species to correspond with that statement. The new species has the edges of these fingers not dentate but crenulate, the alternate projections of one finger neatly fitting the hollows of the other. Here also a pair of tubercles occur on the surface of the carapace between the eyes, which would seem to be absent from the other species under comparison. It may be judged from the copious supply of hooked and other setæ with which the whole exposed surface is furnished in all three species, that all adopt similar methods of concealment. The *Scotia* specimen was a mere garden of seaweed, and the limbs were far more ready to leave the body than either body or limbs were to part with the investing weeds. The pellucid rostrum looked like a bit of weed, and one of the long second peræopods was so thickly matted that it

had ceased to be in any way suggestive of a limb. The eyes have an apical tubercle carrying a setule. The first and second joints in the palp of the mandible seem to be in coalescence. The pleon of the female forms a deep almost circular bowl, the last three segments in coalescence constituting more than half of it. Length of carapace 19 mm., greatest breadth 13 mm., second peræopod about 47 mm. long. For *C. spatulifrons* the corresponding measurements are 19, 14, and 44 mm.

*Locality*.—Lat. 18° 24' S., long. 37° 58' W.; depth 36 fathoms; Station 81.

#### Genus *Eurypodius*, Guérin.

1828. *Eurypodius*, Guérin, *Mém. Mus. Hist. Nat. Paris*, vol. xvi. pp. 349, 350.  
 1900. „ „ Stebbing, *Pr. Zool. Soc. London*, p. 527.  
 1910. „ „ Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. pp. 571, 612.

#### *Eurypodius latreillii*, Guérin.

1828. *Eurypodius latreillii*, Guérin, *Mém. Mus. Hist. Nat. Paris*, vol. xvi. p. 354, pl. xiv.  
 1900. „ „ Stebbing, *Pr. Zool. Soc. London*, p. 527.  
 1905. *Eurypodius latreillei*, Lagerberg, *Schwed. Südpol. Exp.*, vol. v. part vii. p. 17 (with copious synonymy).  
 1910. *Eurypodius latreillii*, Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. pp. 571, 612.

The study of this rather abundant species by numerous authors has led to its receiving a considerable variety of names. These are *latreillia* (probably an error of the press), *tuberculatus*, *audouinii*, *andouinii* (error of the press), *cuvieri*, *septentrionalis*, *brevipes*, *latreillei* (probably meant for a correction), *danæ*. All are now regarded as synonyms of the original *E. latreillii*, Guérin. In LAGERBERG'S useful list of the synonymy the crustacea of the *Coquille* are attributed to H. MILNE-EDWARDS, by mistake for GUÉRIN, who naturally uses the form *latreillii*, not the erroneous *latreillia*, which only reappears in GAY'S *Hist. Chle*, 1849, where NICOLET is pleased to refer it to GUÉRIN'S own writings. According to the last-named author, the colour in fresh condition is greenish brown. The discussions instituted by various authors make it fairly certain that the supposed specific differences depend on sex and age or inconstant variation. LAGERBERG had at his disposal specimens varying in the length of the carapace between 8 and 87 mm., with a breadth of 4.5 mm. for the smallest and of 65 mm. for the largest. The *Scotia* specimens do not reach beyond a medium size.

*Localities*.—Falkland Islands, Port Stanley, from 2 and 4 fathoms; Port William, from 6 fathoms; Station 346, Burdwood Bank, lat. 54° 25' S., long. 57° 32' W., depth 56 fathoms. According to LAGERBERG, the greatest depth at which this species has hitherto been obtained is the 70 fathoms recorded by MIERS in his *Challenger* report. *Eurypodius longirostris*, Miers, was dredged in 175 fathoms.

#### Family MAMAIIDÆ.

1905. *Mamaiidæ*, Stebbing, Gilchrist's *Mar. Invest. S.A. Crust.*, part iii. p. 22; and *Pr. Biol. Soc. Washington*, vol. xviii. p. 157.



Genus *Macroceloma*, Miers.

1879. *Macroceloma*, Miers, *J. Linn. Soc. London*, vol. xiv. p. 665.  
 1886. „ Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 79.  
 1901. „ Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 73.

*Macroceloma concavus*, Miers.

1886. *Macroceloma concava*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 81, pl. x. figs. 2, 2a-b.  
 1898. *Macroceloma concavum*, Rathbun, *Pr. U.S. Nat. Mus.*, vol. xxi. p. 576.  
 1901. „ „ Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 75.

In this species the carapace is deeply concave upon the hepatic regions, "the spines of the rostrum are short, in the adult less than one-fourth the length of the carapace, they are nearly straight, divergent, and separate by a triangulate interspace." The arrangement of the tubercles on the somewhat damaged carapace of the *Scotia* specimen appears also to answer the description given by MIERS, and the third maxillipeds and limbs agree with his account and illustrations, with this exception, that in our specimen the finely denticulate inner margins of the fingers in the chelipeds leave a gap only quite close to the hinge. The length of the carapace measured from the base of the rostral spines is 29 mm., the spines themselves 5 mm., the breadth at the eyelobes 20 mm., and at the widest part to the rear 23 mm., not including the lateral spines which are here outstanding.

*Locality*.—Lat. 18° 24' S., long. 37° 58' W.; depth 36 fathoms; Station 81, December 20, 1902.

For the gender of the specific name see *Knowledge*, vol. xxxiii., No. 504, p. 259; and No. 509, p. 470, 1910.

## Family PARTHENOPIDÆ.

1834. "*Parthenopiens*" (tribe), Milne-Edwards, *Hist. Nat. Crust.*, vol. i. p. 347.  
 1847. *Parthenopidæ*, White, *List Crust. Brit. Mus.*, p. 41.  
 1901. „ Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 79.

Genus *Lambrus*, Leach.

1815. *Lambrus*, Leach, *Tr. Linn. Soc. London*, vol. xi. pp. 308, 310.  
 1895. „ Alcock, *J. Asiat. Soc. Bengal*, vol. lxiv. p. 259.  
 1901. „ Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 79.

*Lambrus verrucosus*, Studer.

1832. *Lambrus verrucosus*, Studer, *Abhandl. K. Ak. Wiss. Berlin*, vol. ii. p. 9, pl. i. figs. 2a, 2b.  
 1886. „ „ Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 93.

The species is notable for the very deep furrows which separate the tuberculate median ridge of the carapace from its tuberculate branchial regions. The spinulose rostrum is more produced than in STUDER'S figure, and the chelipeds are more verrucose and dentate in the *Scotia* specimen than in that which STUDER represents. The eyes show minute warts both on and below the cornea. The species belongs to

that section of the genus which MIERS defines as having the fourth joint of the ambulatory limbs more or less spinose or tuberculated. All the six segments of the pleon are also warty.

*Locality*.—Off Pyramid Point, Ascension, from depth of 40 fathoms; June 10, 1904; Station 507.

### Tribe CYCLOMETOPA.

#### Family XANTHIDÆ.

1898. *Xanthidæ*, Alcock, *Jour. Asiat. Soc. Bengal*, vol. lxxvii. part ii. p. 69.

1910. „ Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 296.

The family is here taken in the wider sense.

#### Genus *Xanthodius*, Stimpson.

1859. *Xanthodius*, Stimpson, *Ann. Lyc. Nat. Hist. New York*, vol. vii. p. 52.

1901. „ Rathbun, *Bull. U.S. Fish Comm. for 1900*, vol. ii. p. 27.

A. MILNE-EDWARDS, who gives the reference to STIMPSON as on p. 6, thinks that STIMPSON distinguished *Xanthodius* from *Leptodius* on indifferent grounds, the crest on the endostome in the former being incomplete, and often occurring in a recognised species of the latter genus. Later authorities, however, appear to agree in upholding STIMPSON'S determination, though Miss RATHBUN does not insist on the character to which A. MILNE-EDWARDS refers, and Dr YOUNG speaks of (subgenus) *Leptodius* as having “endostome without trace of longitudinal carinæ.

#### *Xanthodius parvulus* (Fabricius).

1793. *Cancer parvulus*, Fabricius, *Ent. Syst.*, vol. ii. p. 451.

1858. *Chlorodius americanus*, Saussure, *Mém. Soc. Hist. Nat. Genève*, vol. xiv. p. 430 (14), pl. i. fig. 5.

1860. *Xanthodius americanus*, Stimpson, *Ann. Lyc. Nat. Hist. New York*, vol. vii. p. 209 (81).

1879. *Leptodius americanus*, A. Milne-Edwards, *Miss. Sci. Mexique*, part v. p. 269.

1897. *Xanthodius parvulus*, Rathbun, *Ann. Inst. Jamaica*, vol. i. No. i. p. 15.

1900. *Leptodius (Xanthodius) americanus*, Young, *West Indian Stalk-eyed Crust.*, p. 147.

1901. *Xanthodius parvulus*, Rathbun, *Bull. U.S. Fish Comm. for 1900*, vol. ii. p. 27.

1908. „ „ Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 340, text-fig. 12, pl. xiv. fig. 4.

MISS RATHBUN'S identification of DE SAUSSURE'S species with the *Cancer parvulus* of FABRICIUS was based on “types examined.” The description given by FABRICIUS is therefore inexact, since he states the front to be entire, whereas it is notched in the centre; he speaks of the sides as tridentate, but they are quadridentate, and he says that the feet are short, smooth, with fingers black at the apex. As he is no doubt referring to the chelipeds, only the colour note is accurate, while the limbs are not specially short, and have the wrist and hand rough, “eroded in reticulating lines.” The thumb of the larger cheliped in the *Scotia* male specimen has a large blunt tooth on the inner margin near the hinge, and two smaller teeth near the apex; the movable finger has a curved and hollowed apex and a median tooth on the inner margin. The fourth joint of the third maxillipeds is short and broad.

The ambulatory limbs are short, with setose fingers. The pleon is five-segmented. The measurements of the specimen coincide with those given by DE SAUSSURE, length 14 mm., breadth 22 mm., width of front 6 mm.

*Locality*.—St. Vincent, Porto Grande, shore N.E. ; December 1, 1902 ; Station 24.

#### Family PORTUNIDÆ.

#### Genus *Lupa*, Leach.

1813. *Lupa*, Leach, *Edinb. Encycl.*, vol. vii. p. 390.  
 1833. *Neptunus*, de Haan, *Crust. Japonica*, decas 1, p. 7.  
 1897. *Portunus*, Rathbun, *Pr. Biol. Soc. Washington*, vol. xi. pp. 155, 160.  
 1908. *Lupa*, Stebbing, *Annals S. Afr. Mus.*, vol. vi. part i. p. 11.

Several other references for the genus may be obtained from those given for the following species. From the neighbouring and very similar genus *Callinectes*, Stimpson, the present is distinguished in the male sex by having the pleon triangular, without the narrow ending which in *Callinectes* gives it as it were the shape of the capital letter T.

#### *Lupa sayi*, Gibbes.

1802. *Portunus pelagicus*, Bosc, *Hist. Nat. Crust.*, vol. i. p. 219, pl. v. fig. 3 (*Portune pélasgique*).  
 1817. *Lupa pelagica*, Say, *J. Ac. Sci. Philad.*, vol. i. p. 97.  
 1830. *Portunus pelagicus*, Bosc and Desmarest, *Hist. Nat. Crust.*, vol. i. p. 235, pl. v. fig. 3 (*Portune pélagique*).  
 1850. *Lupa sayi*, Gibbes, *Pr. Amer. Assoc.*, p. 178.  
 1852. „ „ Dana, *U.S. Expl. Exp.*, vol. xiii. part i. p. 273, pl. xvi. fig. 8.  
 1861. *Neptunus sayi*, A. Milne-Edwards, *Arch. Mus. Hist. Nat.*, vol. x. p. 317, pl. xxix. fig. 2.  
 1878. „ „ A. Milne-Edwards, *Crust. Mexic.*, p. 210.  
 1886. *Neptunus (Neptunus) sayi*, Miers, *Rep. Voy. "Challenger"*, vol. xvii. part xlix. p. 173.  
 1897. *Portunus sayi*, Rathbun, *Ann. Inst. Jamaica*, vol. i. p. 22.  
 1898. „ „ Rathbun, *Pr. U.S. Mus.*, vol. xxi. p. 592  
 1908. „ „ Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. pp. 373, 374, 376, text-fig. 25, pl. xviii. fig. 2, pl. xxi. fig. 1.

It is probable that this species was included by HERBST in his *Cancer pelagicus*, *Krabben und Krebse*, vol. i. p. 159, 1783, and represented by his fig. 55 on pl. viii. MIERS remarks that "the convex, marbled carapace, short lateral epibranchial spines, and the absence of a spine on the posterior margin of the merus [fourth joint] of the chelipedes are characteristic of this species." He observes that "a large series of specimens of this common pelagic species was taken from the Gulf weed" by the *Challenger* Expedition. The larger of two female specimens obtained by the *Scotia* measured 66 mm. from point to point of the epibranchial spines, with a length of 32 mm. for the carapace. A male specimen similarly measured 70 × 38 mm. The pleon in this agreed with DANA'S single figure, which represents this part of the organism. The male organs are very slender except at the base, and their apices, which curve strongly outwards, nearly reach the end of the telson.

*Locality*.—From Gulf weed, 29° 54' N., 34° 10' W. to 33° 53' N., 32° 27' W. ; ♂ June 30, 1904, ♀ June 29 and July 1, 1904 ; Stations 537, 538, and 539.

## Family CORYSTIDÆ.

1899. *Corystidæ*, Alcock, *Jour. Asiat. Soc. Bengal*, vol. lxxviii. pp. 5, 103.Genus *Nautilocorystes*, Milne-Edwards.

1833. *Dicera* (preoccupied), de Haan, *Crust. Japon.*, decas 1, pp. 4, 14.  
 1837. *Nautilocorystes*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 149.  
 1900. „ „ Stebbing, *Gilchrist's Mar. Invest. S. Afr.*, vol. i. p. 16 (with synonymy).

*Nautilocorystes ocellatus* (Gray).

1831. *Corystes ocellata*, Gray, *Zool. Miscellany*, vol. i. p. 39.  
 1833. *Corystes (Dicera) 8-dentata*, de Haan, *Crust. Japon.*, decas 1, p. 15.  
 1837. *Nautilocorystes ocellatus*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 149; and later in the undated plates of the *Règne animal*, pl. xxiii. figs. 2, 2a-c.  
 1843. *Dicera 8-dentata*, Krauss, *Südafrik. Crust.*, p. 27.  
 1847. *Nautilocorystes ocellatus*, White, *List Crust. in Brit. Mus.*, p. 53.  
 1857. „ „ Stimpson, *Pr. Ac. Sci. Philad.*, p. 39.  
 1900. *Nautilocorystes octodentatus*, Stebbing, *Gilchrist's Mar. Invest. S. Afr.*, vol. i. p. 17.  
 1907. *Nautilocorystes ocellatus*, Stimpson, *Smithson. Misc. Coll.*, vol. xlix. p. 89 [*N. octodentatus* (de Haan) in editor's footnote].  
 1910. *Nautilocorystes octodentatus*, Stebbing, *Annals S. Afr. Mus.*, vol. vi. part iv. p. 311.

My attention has been recently called by Dr CALMAN to the first of these references, which I had overlooked. The oversight was perhaps excusable, seeing that MILNE-EDWARDS prints the name *Nautilocorystes ocellatus* as if the species were his own, and WHITE, who gives reference to GRAY, gives it without date *after* his reference to MILNE-EDWARDS!

*Locality*.—Entrance to Saldanha Bay, South Africa; depth 25 fathoms; Station 483.

## Tribe CATOMETOPA.

## Family GONEPLACIDÆ.

1900. *Goneplacidæ*, Alcock, *J. Asiat. Soc. Bengal*, vol. lxxix. p. 282.  
 1910. *Goneplacidæ*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 312.

Genus *Goneplax*, Leach.

1814. *Goneplax*, Leach, *Edinb. Encycl.*, vol. vii. p. 430.  
 1817. „ „ Latreille, *Règne animal*, vol. iii. p. 16.

*Goneplax angulatus* (Pennant).

1777. *Cancer angulatus*, Pennant, *British Zoology*, vol. iv. p. 7, pl. v. fig. 10.  
 1910. *Goneplax angulata*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 312.

The *Scotia* specimens were taken May 18, 1904.

*Locality*.—Off Dassen Island, near Saldanha Bay; depth 35 fathoms; Station 480.

Genus *Pilumnoplax*, Stimpson.

1858. *Pilumnoplax*, Stimpson, *Pr. Ac. Philad.*, vol. x. p. 93.  
 1910. „ „ Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 315.

*Pilumnoplax heterochir* (Studer).

1882. *Pilumnus heterochir*, Studer, *Abhandl. K. Ak. Wiss. Berlin*, part ii. pp. 6, 14, pl. i. fig. 3, *a-d*.

1886. *Pilumnoplax heterochir*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 227, pl. xix. fig. 1, *a-d*.

MIERS and STUDER both call attention to the peculiarity in this species that the palm of the larger cheliped is smooth except at the base, while in the smaller cheliped the palm externally is covered with numerous granules. The fingers of both limbs retain their dark colour in spirit. STUDER says that in life the colour is intense orange-red, with only the fingers of the chelæ black.

*Locality*.—Gough Island, depths 75 and 100 fathoms; the lower depth recorded on April 22, 1904, the other between April 21 and 23; Stations 460 and 461.

## Family GRAPSIDÆ.

1900. *Grapsidæ*, Alcock, *J. Asiat. Soc. Bengal*, vol. lxxix. part ii. pp. 283, 389.

Genus *Grapsus*, Lamarek.

1801. *Grapsus*, Lamarck, *Syst. Anim. sans Vertèbres*, p. 150.

1900. ,, de Man, *Mém. Soc. Zool. France*, vol. xiii. p. 48.

1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 317.

*Grapsus maculatus* (Catesby).

1758. *Cancer grapsus*, Linn., *Syst. Nat.*, ed. 10, p. 630.

1771, 1743 (reissue 1771). *Pagurus maculatus*, Catesby, *Nat. Hist. Carolinas*, vol. ii. p. 36, pl. xxxvi. fig. 1.

1908. *Grapsus grapsus*, Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 317, pl. x. fig. 6; pl. xi. fig. 2 (with synonymy).

1910. *Grapsus maculatus*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 317.

According to ALCOCK, the carapace of a large specimen is 64 mm. long and 68 mm. broad. In the largest of the *Scotia* specimens the carapace is 32.5 mm. long and 38 mm. broad, with a front 14 mm. broad.

*Localities*.—St Helena, James Bay, June 1 and 2, 1904; Station 499. Ascension Island, June 7, 1904; Station 507. Two small specimens from the shore, Porto Grande, St Vincent, December 1, 1902, Station 24, appear to belong to this species.

Genus *Cyclograpsus*, Milne-Edwards.

1837. *Cyclograpsus*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 77.

*Cyclograpsus punctatus*, Milne-Edwards.

1837. *Cyclograpsus punctatus*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 78.

1838. *Gnathochasmus barbatus*, M'Leay, *Annulosa of S. Africa*, p. 65, pl. iii.

1910. *Cyclograpsus punctatus*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 318.

*Locality*.—Specimens of this prettily marked species, in full agreement with M'LEAY's coloured figure of it, were obtained by the *Scotia* Expedition from the shore of False Bay, May 8, 1904; Station 479.

Genus *Planes*, Bowdich.1825. *Planes*, Bowdich, *Excursions in Madeira and Porto Santo*, p. 15, figs. 2a, 2b.1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 320.

This genus is placed by ALCOCK in his division Varuninæ.

*Planes minutus* (Linn.).

## Plate XXIV.

1758. *Cancer minutus*, Linn., *Syst. Nat.*, ed. 10, vol. i. p. 625.1825. *Planes clypeatus*, *Ex. in Madeira, etc.*, p. 15, figs. 2a, 2b.1905. *Planes minutus*, Stebbing, *Gilchrist's Mar. Invest. S.A. Crust.*, part iii. p. 43.1908. ,, ,, Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 325, text-fig. 7, pl. xiii. fig. a-f,  
pl. xxvii. fig. 6.

A very large number of specimens were obtained by the *Scotia* from the Gulf weed on June 29 and 30 and July 1, 1904. In most cases the colouring is lost, but in some instances there is a well-marked pattern of dark brown on a light ground. In this species the third maxillipeds have the fourth joint much shorter than the third, but quite as broad, the outer margin strongly rounded, the fifth joint inserted in an excavation of the front margin of the fourth, and, when folded down, not reaching beyond that joint's inner edge. The principal joint of the exopod does not reach the end of the endopod's fourth joint. The specimen figured was rather perplexingly distinguished by retaining as preserved a dark-brown colour and showing oblique striæ on both sides of the carapace, while also the indent below the antero-lateral angles was exceptionally well marked.

*Localities*.—Saldanha Bay, South Africa, 25 fathoms; Station 483. And also from 29° 54' N., 34° 10' W., to 33° 53' N., 32° 27' W.; Stations 537, 538, and 539.

Genus *Plagusia*, Latreille.1806. *Plagusia*, Latreille, *Gen. Crust. et Insect.*, vol. i. p. 33.1900. ,, Alcock, *J. Asiat. Soc. Bengal*, vol. lxix. pp. 297, 436.1905. ,, Stebbing, *Marine Invest. S. Afr. Crust.*, part iii. p. 46.1908. ,, Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 332.1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 322.*Immature Form.*1852. *Marestia*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 487.1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv., p. 348.

From the essential agreement of the mouth-organs in the adult and *Megalopa* specimens it seems clear that the form which DANA assigned to his genus *Marestia* is really a juvenile stage of *Plagusia*. Both forms occur abundantly together. In his full account of the genus ALCOCK invites especial attention to a feature of the third maxillipeds, that "their exognath has no flagellum." But this must be taken with some limitation, since DE HAAN figures a small flagellum for his *Plagusia dentipes*, and I find one in *P. capensis*. It is slender, without setæ except at the apex, the apex in the *Megalopa* stage indicating faintly a second joint.

*Plagusia capensis*, de Haan.

## Plate XXVIc.

1835. *Plagusia capensis*, de Haan, *Crust. Japon.*, decas 2, pp. 31, 58.  
 1837. *Plagusia tomentosa*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 92.  
 1905. *Plagusia capensis*, Stebbing, *Marine Invest. S. Afr. Crust.*, part iii. p. 47.  
 1910. *Plagusia chabrus*, Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. pp. 591, 616.  
 1910. „ „ Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 322.

The reasons which I gave in 1905 for upholding the name given by DE HAAN to this species still seem to me valid, while its identification with the obscurely described *Cancer chabrus* of LINNÆUS appears to be quite arbitrary.

*Locality*.—Saldanha Bay, Station 483; and at the coaling jetty, Cape Town docks, Station 478.

Genus *Percnon*, Gistel.

1835. *Acanthopus* (preoccupied), de Haan, *Crust. Japon.*, decas 2, p. 29.  
 1848. *Percnon*, Gistel, *Naturg. Thierreichs*, p. viii.  
 1900. „ Rathbun, *Pr. U.S. Mus.*, vol. xxii. p. 281.  
 1910. „ Stebbing, *Ann. S. Afr. Mus.*, vol. vi. pt. iv. p. 324.

*Percnon planissimus* (Herbst).

1804. *Cancer planissimus*, Herbst, *Krabben u. Krebse*, vol. iii. part iv. p. 3, pl. lix. fig. 3.  
 1825. *Plagusia clavimana*, Desmarest, *Consid. gén. Crust.*, p. 127, pl. xiv. fig. 2.  
 1838 (?) „ „ Milne-Edwards, *Règne anim.*, "Undated Crust.," pl. xxiii. fig. 3.  
 1900. *Liolophus planissimus*, Alcock, *J. Asiat. Soc. Bengal*, vol. lxix. p. 439 (copious synonymy).  
 1902. „ „ de Man, *Abhandl. Senckenberg. nat. Gesellsch.*, vol. xxv. part iii. p. 543, pl. xx. fig. 12.  
 1900. *Percnon planissimum*, Rathbun, *Pr. U.S. Mus.*, vol. xxii. p. 281.  
 1908. „ „ Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 334, pl. x. fig. 3, pl. xii. fig. 4.  
 1910. „ „ Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 324.

This strikingly marked little species has an extensive distribution, being recorded from the East Indies, Australia, New Zealand, the Cape of Good Hope, Chile, Japan, and the Bermudas. According to KRAUSS the South African specimens have the carapace dusky greenish brown, with a bright blue stripe down the middle, and the feet striped (gebändert) with reddish brown and yellow. ALCOCK for the Indian species says that "the colour in life is dark green, the nude streaks being bright green." HERBST'S figure shows the rostrum projecting strongly beyond the flanking lobes, which in the *Scotia* specimen as in the figures by DESMAREST, MILNE-EDWARDS, and VERRILL nearly or quite equal the rostrum in length. Here also, as in VERRILL'S figure, several of the legs are cross-banded instead of being longitudinally striped.

*Locality*.—St Vincent, Porto Grande, shore; December 1, 1902; Station 24.

## Family GECARCINIDÆ.

1837. "*Gecarciniens*," Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 19.  
 1852. *Gecarcinidæ*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 374.  
 1894. „ „ Ortmann, *Zool. Jahrb.*, vol. vii. p. 732.

Genus *Gecarcinus*, Leach.

1814. *Gecarcinus*, Leach, *Edinb. Encycl.*, vol. xvii. p. 430 (see also pp. 391, 435).  
 1825. „ „ Desmarest, *Consid. gén. Crust.*, p. 113.  
 1835. *Ocypoda*, Freminville, *Ann. Sci. Nat.*, sér. 2, vol. iii. p. 224.  
 1836 (?) *Gecarcinus*, Guérin, *Icon. Règne Anim.*, "Crust." pl. v.  
 1837. „ „ Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 25.  
 1858. „ „ Saussure, *Crust. Mexique-Antilles*, p. 23.  
 1886. *Geocarcinus*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 217.  
 1893. *Gecarcinus*, Stebbing, *History of Crustacea*, Internat. Sci. Ser., vol. lxxiv. p. 79.  
 1894. „ „ Ortmann, *Zool. Jahrb.*, vol. vii. pp. 732, 740.  
 1895. „ „ Bouvier, *Bull. Nat. Hist. Mus. Paris*, vol. i. p. 8.  
 1897. „ „ Rathbun, *Ann. Inst. Jamaica*, vol. i. No. 1, p. 24.  
 1901. „ „ Rathbun, *Bull. U.S. Fish. Comm. for 1900*, vol. ii. p. 14.  
 1910. „ „ Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. p. 812.

In this genus of land crabs the small terminal joints of the endopod of the third maxillipeds, sometimes called the palp, are completely concealed in a ventral view by the large fourth joint, and the angle which this joint forms with the third leaves open a lozenge-shaped gap between the two members of this pair of maxillipeds.

In 1837 MILNE-EDWARDS distinguished three species based respectively on the *Cancer ruricola* of LINNÆUS and many other authors, the *Ocypoda lateralis* of FREMINVILLE, and an Australian form which he named *G. lagostoma*. His new species agreed with *G. ruricola* in having the fingers of the ambulatory limbs armed with six rows of spine-teeth instead of the four which characterise *G. lateralis*. Its carapace was said to be smaller than that of *G. ruricola*, which, however, is not the case. The colour is not mentioned, so that the only point of distinction was left dependent on the third maxillipeds, in which the merus or fourth joint is described as having a deep fissure on its internal edge above the following joint, while in *G. ruricola* there is no notable fissure.

*Gecarcinus lagostoma*, Milne-Edwards.

1837. *Gecarcinus lagostoma*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 27.  
 1886. *Geocarcinus lagostoma*, Miers, *Rep. Voy. "Challenger,"* vol. xvii. part xlix. p. 218, pl. xviii. figs. 2, 2a-c.  
 1893. „ „ Benedict, *Pr. U.S. Mus.*, vol. xvi. p. 537.  
 1893. *Gecarcinus lagostoma*, Ortmann, *Decap. und Schizop. Plankton-Exp.*, p. 58.  
 1894. „ „ Ortmann, *Zool. Jahrb.*, vol. vii. p. 740.  
 1900. „ „ Rathbun, *Pr. U.S. Mus.*, vol. xxii. p. 277.

Two large female specimens of this species from Ascension Island were given to the *Scotia* collection by MR CHALMERS. They fully equal in size the specimen from the *Challenger* Expedition figured by MIERS, and surpass it in the massiveness of the chelipeds. MR CHALMERS also presented a much smaller female, matching in size and colouring a male specimen taken by the naturalists of the *Scotia* on June 1, 1904. These small specimens, after nearly nine years in preservative liquid, still have the larger part of the carapace dark purple with six light spots, one outside each eyelobe, the other two pairs at spaces converging towards the median groove.



The colouring might easily suggest such names as the violet or purple crab, which have been applied to *G. ruricola*, and shows correspondence with the figure which GUÉRIN gives of *G. lateralis*. MIERS says of the small specimen from Bermuda which he identifies with *G. lagostoma*, that in colour it nearly resembles specimens of *G. lateralis*, a species to which HEILPRIN and ORTMANN definitely assign it, only with the difference that ORTMANN regards *G. lateralis* as merely a young form of *G. ruricola*. The latter opinion is not accepted by Miss RATHBUN, and does not appear to be tenable, if reliance can be placed on the number of spine-rows in the ambulatory fingers as having specific value. These rows are six in number in the small as well as in the large specimens of *G. lagostoma*. But in a specimen from Antigua, sent me by G. R. FORREST, Esq., which measures 58 mm. in breadth by a length of 45 mm., these rows are limited to four. The specimen has a very large left cheliped, with gaping fingers, and by the pleon and appendages is clearly an adult male. A third pair of carinæ on the ambulatory fingers is at least indicated, though it is not spiniferous. Also the fourth joint of the third maxillipeds has a fissure, though less in extent than that in *G. lagostoma*. On the whole, it is perhaps not surprising that authorities have varied in applying the names *ruricola*, *lateralis*, and *lagostoma* with others which are noted by MIERS, ORTMANN, and RATHBUN.

The male specimen obtained by the *Scotia* has the pleon appendages wide apart, about reaching the end of the sixth segment, with a short subapical fringe directed outward. Breadth of carapace 43 mm., length 34 mm.

*Locality*.—Ascension Island, 5 to 18 fathoms; Station 507.

#### Family HYMENOSOMATIDÆ.

1858. *Hymenosomidæ*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. x. p. 108.  
 1905. *Hymenosomatidæ*, Stebbing, *Gilchrist's Mar. Invest.*, "S.A. Crust.," part iii. p. 49.  
 1906. *Hymenosomidæ*, W. H. Baker, *Tr. R.S. South Australia*, vol. xxx. p. 112.  
 1910. *Hymenosomatidæ*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 331.

As genera belonging to this family there have been named *Hymenosoma*, Desmarest, 1825; *Elamena*, Milne-Edwards, 1837; *Halicarcinus*, White, 1846; *Hymenicus*, Dana, 1852. The specific names which have been distributed among these genera need to be revised by someone who can compare specimens from the several localities concerned.

#### Genus *Hymenosoma*, Desmarest.

1825. *Hymenosoma*, Desmarest, *Consid. gén. Crust.*, pp. xvii, 163.  
 1900. ,, Stebbing, *Pr. Zool. Soc. London*, pp. 520, 523.  
 1905. ,, Stebbing, *Gilchrist's Mar. Invest.*, "S.A. Crust.," part iii. p. 49.  
 1907. ,, Stimpson, *Smithson. Misc. Coll.*, vol. xlix. p. 144.  
 1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 331.

In 1900 I was inclined to agree with Professor HASWELL's opinion that the separation of *Halicarcinus* from *Hymenosoma* rested "on extremely slight points of

distinction." But at least in the typical species of each genus the third maxillipeds are very unlike, the third and fourth joints being about twice as long as broad in *Hymenosoma orbicularis*, whereas the length and breadth are subequal in *Halicarcinus planatus*; besides that the details of shape are not the same. A further dissimilarity concerns the fingers of the walking-legs, which in *H. orbicularis* have the inner margin of the fingers smooth, but clothed almost to the tip with two dense rows of long plumose setæ inserted on either side. In *H. planatus* these fingers have the inner margin fringed with spine-teeth alternating with setæ of very moderate length. In the figures and description which Mr W. H. BAKER supplies in 1906 for *Hymenosoma rostratus*, Haswell, he represents a maxilliped agreeing with that of *H. planatus*, and says that the dactyli of the ambulatory legs "are slightly curved and carry a series of small teeth of about equal size with hairs between." Thus the species seems unsuitable for union with *Hymenosoma*. Professor CHILTON in 1907 decides that *Hymenosoma depressus*, Jacquinet, belongs to the genus in which JACQUINOT placed it, and though JACQUINOT's figure of the external maxilliped is obviously untrustworthy, the limbs in CHILTON's specimen had the other mark of the genus in "the fact that the terminal joints of the last four pairs of legs were fringed with hairs and looked as if they were used as swimming organs."

*Hymenosoma orbicularis*, Desmarest.

Plate XXVA.

1825. *Hymenosoma orbiculare*, Desmarest, *Consid. gén. Crust.*, p. 163, pl. xxvi. figs. 1, 1a-e.  
 1837. " " Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 36.  
 1838. (?) " " Milne-Edwards, *Règne anim.*, illustr., pl. xxxv. figs. 1, 1a.  
 1858. *Hymenosoma geometricum*, Stimpson, *Pr. Ac. Philad.*, p. 108 (54).  
 1904. *Hymenosoma orbiculare*, Doflein, *Deutsch. Tiefsee-Exp.*, vol. vi. p. 88.  
 1905. *Hymenosoma geometricum*, Stebbing, Gilchrist's *Mar. Invest.*, "S.A. Crust.," part iii. p. 50.  
 1907. *Hymenosoma geometricum* and *Hymenosoma orbiculare*, Stimpson, *Smithson. Misc. Coll.*, vol. xlix. p. 144.  
 1910. *Hymenosoma orbiculare* and *Hymenosoma geometricum*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. pp. 331, 332.  
 1913. *Hymenosoma orbiculare*, var. *geometricum*, Balss, Schultze, *Forschungsreise in Süd Afrika*, vol. v. part ii. p. 113 (64).

It may seem presumptuous to cancel STIMPSON's species, but it was founded on a single small specimen, and his remark that the "feet are sparsely provided with fine, inconspicuous hairs," may have been due to a quite accidental condition. DESMAREST gives no indication of the fringe of short setæ with which the broad end of the female pleon is beset. His figure of the external maxillipeds shows the third joint much smaller than the fourth, but this misleading error is corrected by MILNE-EDWARDS in the illustrated edition of the *Règne animal*. In the chelipeds of this species the hand is much more swollen in the male than in the female, and the movable finger of the male has a tooth on the inner margin which appears to vary

considerably in its expansion and denticulation. Among the specimens obtained by the *Scotia* the largest, a male taken on the shore, Houtjes Bay, May 19, 1904, has a carapace 20 mm. long by 15 mm. broad; the next largest, a female, has the carapace 19 mm. in length, including the rostrum as in the other instance, with a breadth of 15 mm. at the widest part of the granulated rim; but, in both examples, if the bulging lateral parts are included, the apparent breadth becomes at least equal to the length, in good accord with the specific name *orbicularis*. The short narrow pleon of the male is in striking contrast to the greatly expanded pleon of the female.

*Localities*.—Entrance to Saldanha Bay, depth 25 fathoms, May 21, 1914; Station 483. Within Saldanha Bay on May 19, on the shore, and in depths of 5 and 8 to 10 fathoms, and the largest female specimen on May 20; Station 482.

#### Genus *Halicarcinus*, White.

1846. *Halicarcinus*, White, *Ann. Nat. Hist.*, ser. 1, vol. xviii. p. 178.  
 1900.        ,,        Stebbing, *Pr. Zool. Soc. London*, p. 521.  
 1907.        ,,        Stimpson, *Smithson. Misc. Coll.*, vol. xlix. p. 145.

Further references to the genus will be deducible from the synonymy of the following species:—

#### *Halicarcinus planatus* (Fabricius).

1775. *Cancer planatus*, Fabricius, *Syst. Ent.*, p. 403.  
 1846. *Halicarcinus planatus*, White, *Ann. Nat. Hist.*, ser. 1, vol. xviii. p. 178, pl. ii. fig. 1.  
 1891.        ,,        Mocquard, A. Milne-Edwards, *Miss. Cap Horn*, "Crust.," p. 27.  
 1893.        ,,        Ortmann, *Zool. Jahrb.*, vol. vii. p. 31.  
 1900.        ,,        Stebbing, *Pr. Zool. Soc. London*, p. 524, pl. xxxvi.B.  
 1902.        ,,        Hodgson, "*Southern Cross*" *Exp.*, p. 231.  
 1903.        ,,        Ortmann, *Princeton Exp. Patagonia*, vol. iii. p. 660.  
 1904.        ,,        Doflein, *Deutsch. Tiefsee-Exp.*, vol. vi. p. 87.  
 1905.        ,,        Lagerberg, *Schwed. Südpol. Exp.*, vol. v. part vii. p. 25.  
 1909.        ,,        Chilton, *Subantarctic Is. N. Zealand*, p. 609.  
 1910.        ,,        Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. p. 570.

Numerous specimens were obtained by the *Scotia* at the Falkland Islands, in January 1903, in Port Stanley Harbour and in shore pools at Cape Pembroke, and again on January 31, 1904, on the shore at Port William. In this last gathering, as in the earlier one from shore pools, the male specimens were distinguished by the considerable size of the chelipeds. A single specimen is labelled November 1903, Macdougall Bay, South Orkneys.

#### Tribe OXYSTOMATA.

1841. *Oxystomata*, de Haan, *Crust. Japonica*, decas 5, p. 111.

#### Family CALAPPIDÆ.

1851. *Calappidæ*, Dana, *U.S. Expl. Exp.*, vol. xiii. pp. 390, 393.

Genus *Mursia*, Desmarest.

1825. *Mursia*, Desmarest, *Consid. gén. Crust.*, p. 108.  
 1900. „ Stebbing, Gilchrist's *Mar. Invest.*, "S.A. Crust.," part i. p. 21 (with synonymy).  
 1904. „ Doflein, *Deutsch. Tiefsee-Exp.*, vol. vi. p. 36.  
 1906. „ Rathbun, *Bull. U.S. Fish. Comm. for 1903*, part iii. pp. 887-8.  
 1911. „ Rathbun, *Tr. Linn. Soc. London*, vol. xiv. part ii. p. 198.

DOFLEIN discusses the various species that had been assigned to the genus down to 1904.

*Mursia cristimanus*, de Haan.

1837. *Mursia cristimanus*, de Haan, *Crust. Japonica*, decas 3, p. 70.  
 1839. *Mursia cristimana*, de Haan, *Crust. Japonica*, decas 4, p. 73, pl. E (mouth-organs).  
 1900. *Mursia cristimanus*, Stebbing, *S.A. Crust.*, part i. p. 22 (with synonymy).  
 1904. *Mursia cristimana*, Doflein, *Deutsch. Tiefsee-Exp.*, vol. vi. p. 38, pl. xvi. fig. 5-12, pl. xviii. fig. 1.

To distinguish this species from *M. armatus*, de Haan, and its varieties or near allies, DOFLEIN relies especially on three characters: the front of the carapace produced to a sharp central tooth; the hind margin smooth, without teeth, only slightly undulating and carrying a fine row of granules; and thirdly, the under margin of the chelæ beset with coarse teeth, not exceeding eight or nine in number. With these characters the *Scotia* specimen agrees.

For determining the correct specific name the synonymy given by Dr DOFLEIN introduces some perplexity. He cites *M. cristimana*, Latreille, from CUVIER, *Règne animal*, ed. 2, p. 39, 1829, but the name *cristimana* does not occur in that work, so far as I can find, either on p. 39 of vol. iv. or elsewhere. On the other hand, DOFLEIN supplies a reference which I omitted in 1900, namely, *Mursia cristata*, Milne-Edwards, in *Atlas zu Cuvier, Règne animal*, ed. 3, Taf. xiii. fig. 1 and 1a, to which he attaches the date 1836. If that date can be depended on, the name of the species should be *cristatus* instead of *cristimanus*, since the latter is not earlier than 1837, so far as known. It is true that in 1837 MILNE-EDWARDS gives a reference to pl. xiii. of the 3rd edition of the *Règne animal*, but it does not follow that the undated plate had been published a year earlier, so that DE HAAN'S *cristimanus* may still hold its ground, till proof is forthcoming of the true date of publication for pl. xiii. in the 3rd edition of the *Règne animal* (see additional note, p. 307).

*Locality*.—Off Dassen Island, South Africa, from depth of 35 fathoms, May 18, 1904; Station 480.

## Brachyura anomala.

1893. *Brachyura anomala* (part), Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 133.  
 1899. „ „ Alcock, *Deep-Sea Brachyura Investigator*, p. 6.  
 1910. „ „ Stebbing, *Ann. S.A. Mus.*, vol. vi. p. 341.

## Family DROMIIDÆ.

1899. *Dromiidæ*, Alcock, *Journ. A.S. Bengal*, vol. lxxviii. pp. 128, 135.

Genus *Dromia*, J. C. Fabricius.1798. *Dromia*, J. C. Fabricius, *Suppl. Ent. Syst.*, p. 359.*Dromia dormia* (Linn.).1763. *Cancer dormia*, Linn., *Amoen. Acad.*, vol. vi. p. 413.1910. *Dromia dormia*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. p. 342.

A large specimen of what I suppose to be this species was obtained by the *Scotia* in lat. 48° 06' S., long. 10° 05' W., the depth reached by the trawl being 1742 fathoms, at Station 451, May 13, 1904.

Some small specimens, taken on the shore, Houtjes Bay, Saldanha Bay, belong to this family, but their position in it remains for the present indeterminate.

Genus *Pseudodromia*, Stimpson.1858. *Pseudodromia*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. x. p. 226 (64).*Pseudodromia latens*, Stimpson.1858. *Pseudodromia latens*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. x. pp. 226, 240.1910. " " Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 340 (with references).

*Locality*.—Saldanha Bay, South Africa, from 5 fathoms, May 20, 1904; Station 482.

## Family LATREILLIIDÆ.

1899. *Latreillidæ*, Alcock, *Journ. Asiat. Soc. Bengal*, vol. lxxviii. part ii. pp. 130, 165.1902. *Latreilliidæ*, Stebbing, Gilchrist's *Mar. Invest.*, "S.A. Crust.," part ii. p. 23.Genus *Latreillia*, Roux.1828. *Latreillia*, Roux, *Crust. Méditerranée*, part v. pl. xxii.1894. *Latreillea*, A. Milne-Edwards and Bouvier, *Rés. Camp. Sci. Monaco*, fasc. vii. p. 59.*Latreillia elegans*, Roux.1828. *Latreillia elegans*, Roux, *Crust. Méditerranée*, pl. xxii.1902. " " Stebbing, *S.A. Crust.*, part ii. p. 24 (with synonyms).

The small specimens obtained by the *Scotia* indicate that the relations of length between the fingers and palm of the chelipeds are variable. The feathering of the penultimate joint of the fifth peræopod is well shown. It is highly desirable that specimens of this remarkable organism should be preserved separately, if possible, when first captured, as otherwise they shed their limbs with vexatious freedom, the sharp prickles on the long, stiffly geniculating joints tending to hopeless entanglement with extraneous objects.

*Locality*.—Off Pyramid Point, Ascension, from a depth of 45 fathoms, June 10, 1904; Station 507.

## MACRURA.

## Macrura anomala.

1893. *Macrura anomala*, Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 147.  
 1901. „ „ Alcock, *Catal. Indian Deep-Sea Crustacea*, p. 204.  
 1908. *Heteromacrura*, Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 433.  
 1910. *Macrura anomala*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part. iv. p. 349. (From this reference other references may be traced.)

## Tribe PAGURIDEA.

1901. *Paguridea*, Alcock, *Catal. Indian Deep-Sea Crust.*, p. 205.  
 1905. „ Alcock, *Catal. Indian Decap. Crust.*, part ii. p. 1.

## Family LITHODIDÆ.

1853. *Lithodidæ*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 1430.  
 1900. „ Stebbing, *Pr. Zool. Soc. London*, p. 530.  
 1901. „ Alcock, *Catal. Indian Deep-Sea Crust.*, p. 231.

Genus *Lithodes*, Latreille.

1806. *Lithodes*, Latreille, *Gen. Crust. et Insect.*, vol. i. p. 39.  
 1905. „ Stebbing, *Gilchrist's Mar. Invest.*, "S.A. Crust.," part iii. p. 69.  
 1913. „ Balss, *Abhandl. K. Bayer. Ak. Wiss.*, suppl., vol. ii. part ix. p. 73.

*Lithodes antarcticus*, Jacquinot.

- 1843-1847. *Lithodes antarctica*, Jacquinot, *Voy. Pôle Sud*, Atlas, pl. vii., pl. viii. figs. 9-14.  
 1847. *Lithodes antarcticus*, White, *Crust. Brit. Mus.*, p. 56.  
 1849. *Lithodes antarctica*, Nicolet, *Gay's Hist. Chile*, "Zool.," vol. iii. p. 182.  
 1852. „ „ Dana, *U.S. Expl. Exp.*, vol. xiii. p. 427, pl. xxvi. fig. 15.  
 1853. „ „ Lucas, *Voy. Pôle Sud*, "Zool.," vol. iii. p. 90.  
 1891. „ „ A. Milne-Edwards, *Mission Cap Horn*, "Crust.," p. 24.  
 1905. *Lithodes antarcticus*, Lagerberg, *Schwed. Südpol. Exp.*, vol. v. part vii. p. 12 (giving many other important references).  
 1910. *Lithodes antarctica*, Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. p. 595.

NICOLET says that the vernacular name of this fine crustacean is *Centolla*, that it is much appreciated as food, not only by human beings, but also by seals, which carry the creatures ashore and dash them against the rocks to get at the meat without being inconvenienced by the strong spines of the carapace. The dried carapace, he says, is hung up by the peasants in their cottages to act as a barometer, by its reddening for fine weather and becoming pale for approaching rain. He gives the length as  $7\frac{3}{4}$  inches, with a stretch of the limbs reaching  $29\frac{1}{6}$  inches. DANA says: "Specimens are often 5 inches long, with a breadth of  $4\frac{1}{3}$  inches, the longest legs being  $9\frac{1}{2}$  inches long. The exuvia of one, procured by us, was 8 inches in length, with the longest legs 15 inches in length." According to MIKLOUHO-MACLAY (quoted by LAGERBERG), at the Isle of Chiloe this crustacean is known as *Barometro Araucano*, because "the ordinary colour of the shell

during dry weather is light grey, which as soon as the air gets damp becomes gradually covered with spots of a dark (reddish) tint. The increase of humidity in the atmosphere makes the spots larger, so that the shell is at last quite of a dark (reddish) colour." If this and NICOLET's contrary account are both true, one can only infer that weather forecasts in those regions are as little to be trusted as in our own climate.

The specimen obtained by the *Scotia* had the characteristic rostrum distally upturned, with two pairs of lateral teeth; between these there is a small central tooth; the peduncles of the eyes are denticulate, and a large tooth on the outer side of each orbit projects a little beyond the eye; the pleon is practically symmetrical, without appendages, but with a medio-ventral process as shown in JACQUINOT's fig. 12.

Length of carapace, including the rostrum, 49 mm., greatest breadth 44 mm.; length of fourth peræopods 110 mm.; of the third not shorter.

*Locality*.—Station 346. Burdwood Bank, lat. 54° 25' S., long. 57° 32' W.; depth 56 fathoms; December 1, 1903.

Together with the above was taken a small pellucid specimen, unfortunately with rostrum broken off, measuring 18 mm. in breadth of carapace, by a length of 22 mm., allowing for the lost rostrum. As with the larger specimen, the pleon of this juvenile indicated that it was of the male sex.

#### Genus *Paralomis*, White.

1856. *Paralomis*, White, *Pr. Zool. Soc. London*, vol. xxiv. p. 134.  
 1900. „ Stebbing, *Pr. Zool. Soc. London*, p. 531.  
 1908. „ Hansen, *Ingolf-Exp.*, "Crust. Malac.," vol. iii. part ii. pp. 22, 24.  
 1913. „ Balss, *Abhandl. K. Bayer. Ak. Wiss.*, suppl., vol. ii. part ix. p. 76.

The validity of this generic name has been questioned by BENEDICT, who in 1894 regarded it as a synonym of *Echinocerus*, White, 1848.

In 1847, in the *List of Crustacea in the British Museum*, WHITE named without defining a genus *Echidnocerus*, with a species *E. cibarius*. In the following year, in the *Proc. Zool. Soc. London*, p. 47, pls. ii., iii., he described and figured the form in question as a new species and subgenus, giving the first name as *Echinocerus* in the text, but as *Echidnocerus* on the plates. It may perhaps be assumed that *Echinocerus* was a misprint. However that may be, BENEDICT adopted it for JACQUINOT's Magellanic species, and instituted a new genus *Leptolithodes* for HENDERSON's *Paralomis aculeatus*, 1888, and several others. Subsequent opinion, however, has made *Leptolithodes*, and not *Echidnocerus*, a synonym of *Paralomis*. But that some of these generic divisions are not very easy to follow may be inferred from the remarks which HANSEN makes in 1908 when describing a new species, *Paralomis bowieri*. After stating that "the marginal plates on the third abdominal segment are quite free in the male, but quite fused with the lateral plates in the female," he adds, "as this feature in the marginal plates of the third segment is generally considered

an important generic character, the male should be referred to *Acantholithus*, Stimps., the female to *Paralomis*. I have preferred to place the species with the latter, as it shows some resemblance to *P. aculeatus*, Hend."

*Paralomis granulosa* (Jacquinot).

- 1843-1847. *Lithodes granulosa*, Jacquinot, *Voy. Pôle Sud*, Atlas, pl. viii. figs. 15-21.  
 1856. *Paralomis granulosa*, White, *Pr. Zool. Soc. London*, vol. xxiv. p. 134.  
 1900. " " Stebbing, *Pr. Zool. Soc. London*, p. 532.  
 1903. " " Ortmann, *Princeton Exp. Patagonia*, vol. iii. p. 658.  
 1905. " " Lagerberg, *Schwed. Südpol. Exp.*, vol. v. part vii. p. 14.

The *Scotia* specimens of this tolerably abundant species are small, the carapace of the larger, a female, being 36 mm., of the smaller only 23 mm., in length and breadth. The variations which develop in specimens of different sizes are discussed by LAGERBERG, who had at his disposal six specimens, the smallest measuring 17 mm. by 17.5 mm., while the largest, a male, had a carapace 90 mm. long and 95 mm. broad. He figures the last four joints of the right male chela as measuring 133 mm. in length and displaying very conspicuous teeth on the wrist. In the *Scotia* female specimen these teeth are very prominent but less irregular. LAGERBERG records 100 m. as the greatest hitherto known depth for the occurrence of this species, which is practically in agreement with the *Scotia* record.

*Locality*.—Burdwood Bank, lat. 54° 25' S., long. 57° 32' W.; depth 56 fathoms or 102 m.; December 1, 1903; Station 346.

Family PAGURIDÆ.

1852. *Paguridæ*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 435.

*Pagurus arrosor* (Herbst).

1908. *Pagurus arrosor*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part i. p. 22.

Under the above reference I have discussed the synonymy and interesting ornamentation of this species.

*Locality*.—A characteristic specimen, in a shell of the genus *Triton*, was obtained by the *Scotia* from coaling jetty, No. 1, Cape Town docks, May 14, 1904; Station 477.

*Pagurus calidus*, Risso.

1826. *Pagurus calidus*, Risso, *His. Nat. Eur. Mérid.*, vol. v. p. 29.  
 1888. " " Henderson, *Rep. Voy. " Challenger,"* vol. xxvii. part lxix. p. 57.  
 1905. " " Alcock, *Indian Decap. Crust.*, part ii. fasc. i. p. 170 (ample synonymy).

This handsomely coloured species is strikingly like in form to *P. arrosor*, as observed both by MILNE-EDWARDS and HELLER, but in place of the scale-like markings on the first three pairs of peræopods, here there are quantities of pointed tubercles interspersed with fascicles of hairs.

*Locality*.—From Station 507, Clarence Bay, Ascension Island, the *Scotia* obtained two specimens, each in a shell of the genus *Strombus*.



Genus *Eupagurus*, Brandt.

1851. *Eupagurus*, Brandt, Middendorff's *Sibirische Reise*, "Zool.," part i. p. 105.  
 1900. " Stebbing, *Pr. Zool. Soc. London*, p. 534.  
 1905. " Alcock, *Indian Decap. Crust.*, part ii. fasc. i. p. 122.

*Eupagurus forceps*, Milne-Edwards.

## Plate XXVIb.

1836. *Pagurus forceps*, Milne-Edwards, *Ann. Sci. Nat.*, ser. 2, "Zool.," vol. vi. p. 272, pl. xiii. fig. 5.  
 1837. " " Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 221.  
 1847. *Pagurus comptus*, White, *Pr. Zool. Soc. London*, p. 122.  
 1849. *Pagurus forceps*, Nicolet, in Gay's *Hist. Chile*, "Zool.," vol. iii. p. 189.  
 1849. *Pagurus gayi*, Nicolet, in Gay's *Hist. Chile*, "Zool.," vol. iii. p. 190, pl. i. fig. 6.  
 1858. *Eupagurus comptus*, Stimpson, *Pr. Ac. Philad.*, p. 237 (75).  
 1891. " " Mocquard, in A. Milne-Edwards' *Mission du Cap Horn*, "Crust.," p. 29.  
 1900. " " Stebbing, *Pr. Zool. Soc. London*, p. 535.  
 1905. *Eupagurus forceps*, Lagerberg, *Schwed. Südpol.-Exp.*, vol. v. part vii. p. 2, pl. i. figs. 1-3.  
 1910. *Pagurus forceps*, *P. comptus*, *P. gayi*, Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. p. 598.

LAGERBERG gives reasons for identifying *E. comptus* and its varieties with the earlier *E. forceps* (Milne-Edwards). NICOLET says that his *E. gayi* is taken along with *E. forceps* on the coasts of Chile, and has the greatest affinity with it, but differs by the want of spines on the inner feet and the form of the left cheliped, the fingers of which are much more robust. Miss RATHBUN, in a *List of Species occurring from Panama to the Island of Chiloë*, gives all the above-mentioned three specific names separately, but without discussion of their validity. One of the *Scotia* specimens agrees so closely with NICOLET's figure of *E. gayi* in colouring, size, and features that there can be no doubt of its belonging to the species so named by NICOLET, but the characters on which he relies do not seem to warrant its separation from *E. forceps*.

*Locality*.—Port Stanley, Falkland Islands, January 20, 1903; depth 2 fathoms; Station 118.

*Eupagurus modicellus*, n. sp.

## Plate XXVIc.

Among the numerous species of this genus I have not been able to find one with the combination of characters presented by this little form. The front of the carapace has a very blunt median projection and the lateral angles not produced. The eye peduncles are long, longer than the front. The second antennæ have a slender acicle, not denticulate, and a long flagellum, strikingly setose, with some of the setæ standing out very conspicuously. The endopod of the first maxilla is without a flagellum, and all the three pairs of maxillipeds have the exopod flagellate. In the third joint of the third maxillipeds the inner margin is finely denticulate, with two of the teeth larger than the rest. The right cheliped is much the larger. On the inner surface of the hand an elevation extends from the base of the finger transversely to the base of the wrist, and another from the tip of the thumb curves gently to meet

the first at about one-third of its course from the base of the finger, which also on its inner side is traversed from tip to base by a curved elevation. On the outer side the hand shows a broad, slightly convex surface, bounded by sharp edges, the wrist and hand being denticulate on the border which is continuous with the finely serrate, strongly curved outer margin of the stout finger. The left chela has slender fingers seemingly longer than the palm. The second and third peræopods have setæ on one margin and fine spines on the other of the seventh joint, which ends in a pellucid nail. The fourth peræopods are feebly subchelate, the fifth minutely chelate. The pleopods are pellucid, very unequally biramose. The telson is unsymmetrical, each lobe edged with small spinules. The carapace measured 2.5 mm. The specific name alludes to the extremely modest dimensions of the new species.

*Locality*.—Pyramid Point, Ascension Island; depth 40 fathoms; Station 507; June 10, 1904.

Genus *Calcinus*, Dana.

1852. *Calcinus*, Dana, *U.S. Expl. Exp.*, vol. xiii. pp. 435, 456.  
 1905. ,, Alcock, *Indian Decap. Crust.*, part ii. fasc. i. p. 51.  
 1913. ,, Arata Terao, *Annot. Zool. Japonenses*, vol. viii. part ii. p. 357.

In this genus the eye-stalks are long and slender, the left cheliped much larger than the right, the fourth peræopod subchelate, the fifth chelate, the pleopods biramose, attached to the pleon on the left side of the second to the fifth segments in both sexes, the uropods much larger on the left than on the right side.

Judging by the species represented in the *Scotia* collection, the first maxillipeds are slight in structure, but the second and third pairs of remarkable strength, especially in regard to the exopod, the trunk of which in both pairs far exceeds the endopod in breadth, and in the second pair reaches far beyond the endopod's fourth joint. In the third pair it does not much exceed that joint, but its basal half is much broader than the corresponding part in the second pair; in both the first joint of the flagellum is much broader than the following joints, which are armed with the usual setæ. In the second maxillipeds the third joint of the endopod is much shorter than the fourth, but only a little shorter in the third pair. In both pairs the terminal three joints are abundantly furnished with setiform spines, very long and crowded in the third pair, where this group of joints exceeds in length that of the third and fourth joints combined.

*Calcinus talismani*, A. Milne-Edwards and Bouvier.

Plate XXVIA.

1892. *Calcinus talismani*, A. Milne-Edwards and Bouvier, *Ann. Sci. Nat. Zool.*, ser. 7, vol. xiii. p. 225.  
 1900. ,, ,, A. Milne-Edwards and Bouvier, *Crust. Decap. "Travailleur" and "Talisman,"*  
 p. 173, pl. xxiii. figs. 15-18.  
 1905. ,, ,, Alcock, *Indian Decap. Crust.*, part ii. fasc. i. p. 164.

The *Scotia* specimens agree well with the description and figures given by the eminent French authors, except that in one place, by an obvious slip of the pen, they

speak of the right cheliped as being the larger, and in the illustrations the two chelipeds can scarcely be drawn to a uniform scale, since otherwise they would be far from representing the relative proportions. At least in the *Scotia* examples the chelipeds answer to ALCOCK'S generic definition, "the left being vastly the larger." The beautiful colouring is unfortunately no longer available in our specimens to assist identification. That the ungues are black in the ambulatory legs may be common to many species. The slight curvature and basal widening of the long eye-stalks may be worthy of mention, and the bareness of the flagellum of the second antennæ. The length of about an inch corresponds with that assigned to the specimens obtained at St Vincent by the French expedition.

*Locality*.—Porto Grande, shore, St Vincent; Station 24.

### Tribe GALATHEIDEA.

1888. *Galatheidea*, Henderson, *Rep. Voy. "Challenger,"* vol. xxvii. p. 103.  
 1913. ,, Doflein and Balss, *Ergebn. Deutsch. Tiefsee-Exp.*, vol. xx. part iii. p. 131.

### Family GALATHEIDÆ.

1853. *Galatheida*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 1431.  
 1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 362.  
 1913. ,, Doflein and Balss, *Ergebn. Deutsch. Tiefsee-Exp.*, vol. xx. part iii. p. 131.

### Genus *Munida*, Leach.

1820. *Munida*, Leach, *Dict. Sci. Nat.*, vol. xxviii. p. 52.  
 1891. ,, Mocquard, in A. Milne-Edwards' *Miss. Cap Horn*, "Crust.," p. 32.  
 1899. ,, G. M. Thomson, *Tr. N. Zealand Inst.*, vol. xxxi. p. 194.  
 1905. ,, Lagerberg, *Schwed. Südpol.-Exp.*, vol. v. part vii. p. 6.  
 1908. ,, Verrill, *Tr. Connect. Ac. Sci.*, vol. xiii. p. 435.  
 1909. ,, Chilton, *Subantarct. Islands of N. Zealand*, part xxvi. p. 612.  
 1910. ,, Rathbun, *Pr. U.S. Mus.*, vol. xxxviii. pp. 559, 601.  
 1911. ,, Ortmann, *Princeton Univ. Patagonian Exp.*, part vi. p. 659.  
 1913. ,, Doflein and Balss, *Ergebn. Deutsch. Tiefsee-Exp.*, vol. xx. part iii. p. 141.

### *Munida subrugosus* (White).

1847. *Galathea subrugosa*, White, *List of Crust. in Brit. Mus.*, p. 66 (without description).  
 1852. ,, ,, White, *Voy. of "Erebus" and "Terror,"* pl. iii. fig. 2 (quoted by DANA in 1852).  
 1852. *Munida subrugosa*?, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 479, pl. xxx. fig. 7, a, b, c.  
 1885. ,, ,, Filhol, *Mission de l'île Campbell*, "Zool.," p. 425.  
 1902. ,, ,, Hodgson, "*Southern Cross*," *Nat. Hist.*, p. 232.

The above selection of references will enable the student to trace the unending or at any rate unended controversy which seeks to determine whether *Grimothea gregarius* (Fabricius) and *Munida subrugosus* (White) are one and the same or two distinct species. FILHOL, MOCQUARD, LAGERBERG, with abundant material, affirm that alike in old and young specimens the notably expanded last three joints of the external maxillipeds distinguish *M. gregarius* from *M. subrugosus*, and ORTMANN in 1911, BALSS in 1913, agree with them. Additional distinctions are based on the

shape of the carapace and on its rostral and antero-lateral spines, which in the *subrugosus* form are more elongate than in *gregarius*. Dr CHILTON, however, in 1909, is still unconvinced, and propounds the theory that "the foliaceous maxillipeds of *Grimothea gregaria* are associated with its pelagic habit," and that when it finds a deeper dwelling-place successive moults enable it to assume shorter, less foliaceous, and more infolded terminal joints to its external maxillipeds. He considers *Grimothea novaezelandiæ*, Filhol, also a synonym of *M. subrugosus*. Making up for this loss to the genus, Miss RATHBUN in 1910 determines that *Grimotea gregaria*, Guérin, 1830-1831, is not the *G. gregaria* (Fabricius), but a distinct species, *Munida cockeri*, noticed by DOFLEIN and BALSS as *M. cockeri*.

The *Scotia* obtained the cast skin of a large specimen, with well-pronounced rostral and antero-lateral spines, which I am satisfied to call *M. subrugosus*.

*Locality*.—Port William, Falkland Islands, January 1903; depth 6 fathoms; Station 118.

#### *Munida gregarius* (Fabricius).

1793. *Galathea gregaria*, Fabricius, *Ent. Syst.*, vol. ii. p. 473.

1820. *Grimothea gregaria*, Leach, *Dict. Sci. Nat.*, vol. xviii. p. 50 (A. Milne-Edwards).

1891. *Munida gregaria*, Mocquard, in A. Milne-Edwards' *Miss. Cap Horn*, "Crust.," p. 32, pl. ii. figs. 1, 1a-c.

Without venturing a decisive opinion on the controversy above considered, I can affirm that several little specimens obtained by the *Scotia* belong to the juvenile form described and figured by MOCQUARD as *Munida gregaria* (Fabricius). The fourth joint of the third maxillipeds is not apically produced, and the two following joints are distally dilated.

*Locality*.—Stanley Harbour, Falkland Islands, surface; Station 118.

#### Tribe HIPPIDEA.

1849. *Hippidea*, de Haan, *Crust. Japon.*, decas 7, pp. 200 and xxii.

1904. ,, Borradaile, *Fauna Maldive*, vol. ii. part iii. p. 750.

1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 365.

#### Family ALBUNEIDÆ.

1858. *Albunidæ*, Stimpson, *Pr. Ac. Philad.*, p. 230 (68).

1878. *Albuneidæ*, Miers, *J. Linn. Soc. London*, vol. xiv., No. 76, p. 326.

1893. ,, Stebbing, *Hist. Crust.*, p. 152.

1907. ,, Nobili, *Ann. Sci. Nat.*, "Zool.," ser. 9, vol. iv. p. 142

#### Genus *Albunea*, Fabricius.

1798. *Albunea*, Fabricius, *Suppl. Ent. Syst.*, pp. 372, 397.

1837. ,, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 202.

1858. *Albunæa*, Stimpson, *Pr. Ac. Philad.*, p. 230 (68).

1878. *Albunea*, Miers, *J. Linn. Soc. London*, vol. xiv., No. 76, p. 326.

1893. ,, Henderson, *Tr. Linn. Soc. London*, vol. v. part. x. p. 409.

1907. ,, Nobili, *Ann. Sci. Nat.*, "Zool.," ser. 9, vol. iv. p. 142.

*Albunea guerinii*, Lucas.

1758. (?) *Cancer carabus*, Linn., *Syst. Nat.*, ed. 10, vol. i. p. 632 (reprint).  
 1849. *Albunea symnista*, Lucas, *Expl. Algérie*, "Crust.," p. 27, pl. iii. figs. 2, 2a.  
 1853. *Albunea guerinii*, Lucas, *Rev. et Mag. Zool.*, sér. 2, vol. v. pp. 45-47, pl. i. figs. 9, 9a, b, b, c.  
 1858. *Albunæa guerini*, Stimpson, *Pr. Ac. Philad.*, p. 230 (68).  
 1878. *Albunea guerinii*, Miers, *J. Linn. Soc. London*, vol. xiv., No. 76, p. 327.

In regard to this handsome species, MIERS says: "It is possible that this is the species described by LINNÆUS (*Syst. Nat.*, p. 1052) from the Mediterranean, under the name of *Cancer carabus*." Considering the locality and the unusually full description which LINNÆUS had given in the earlier edition of his *Systema*, it seems even highly probable that his *C. carabus* is the species with which we are here concerned. That the flattened eye-stalks, tapering to little black dots, should have been mistaken for movable parts of a divided rostrum, is not so very surprising for times when observers trusted much to unaided eyesight. From the typical species of the genus *A. symmysta* (Linn.), 1758, the present is distinguished by the terminal joint of the third peræopods, which is without the narrow linear lobe conspicuous in the type. This deficiency, however, it shares with *A. microps*, Miers, and *A. thurstoni*, Henderson, from the East Indies. The *Scotia* specimen has a very small rostral tooth in the central concavity of the frontal margin; there are eight very distinct teeth on either side of this margin, the outermost four being the largest, and the one next the eyes being larger than the intermediate three. A strong spine projects over the front border of the pterygostomial region, and a smaller one arms the basal joint of the outer antennæ. The three terminal joints of the third maxillipeds are ventrally and laterally carinate. The oval telson is dorsally grooved down the centre nearly to the end, the apex being drawn out subacutely. Length of carapace at centre 17 mm., at longest part 23 mm.; breadth 23 mm.; first antennæ 48 mm. long; telson 7 mm. long by slightly over 4 mm. broad.

*Locality*.—James Bay, St Helena, June 2, 1904; Station 499.

LUCAS in his fig. 9, 1853, shows a frontal margin with three little teeth near the eye, and outside of these six larger ones, stating in his text that the teeth are "ordinairement au nombre de neuf," in contrast to *A. symmysta*, in which they vary between eleven and fourteen. The figure of a finger is marked 9b, and likewise the figure of two pleon-segments with the uropods.

**Macrura genuina.**

## Tribe SCYLLARIDEA.

1893. *Scyllaridea*, Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 191.

## Family SCYLLARIDÆ.

Genus *Scyllarides*, Gill.

1898. *Scyllarides*, Gill, *Science*, new ser., vol. vii. p. 98.

*Scyllarides elisabethæ* (Ortmann).1897. *Scyllarus elisabethæ*, Ortmann, *Zool. Jahrb.*, vol. x. p. 270.1908. *Scyllarides elisabethæ*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part i. p. 30, pl. xxx.*Locality*.—Off St Helena harbour, between 45 and 55 fathoms; June 2, 1904.

## Family PALINURIDÆ.

1888. *Palinuridæ*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 74.Genus *Jasus*, Parker.1883. *Jasus*, Parker, *Nature*, vol. xxix. p. 190.*Jasus lalandii* (Milne-Edwards).1837. *Palinurus lalandii*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 293.1884. *Jasus lalandii*, Parker, *Tr. New Zeal. Inst. for 1883*, p. 304.1910. ,, ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 374.1913. *Palinurus (Jasus) lalandii*, Gilchrist, *J. Linn. Soc. London*, vol. xxxii. No. 216, p. 225, plate.

The *Scotia* obtained this abundant species at the entrance to Saldanha Bay, depth 25 fathoms. Dr GILCHRIST has recently given an interesting description and figure of a larval stage, for which he coins the new term "naupliosoma."

## Tribe PENÆIDEA.

1888. *Penæidea*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 219.

## Family PENÆIDÆ.

1881. *Penæidæ*, Bate, *Ann. Nat. Hist.*, ser. 5, vol. viii. pp. 171, 173.1888. ,, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 220.

During the present century many important contributions have been made to our knowledge of this family, especially by ALCOCK, BOUVIER, KEMP, and DE MAN.

Genus *Gennadas*, Bate.1881. *Gennadas*, Bate, *Ann. Nat. Hist.*, ser. 5, vol. viii. pp. 171, 191.1888. ,, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 229, 339.1895. ,, FAXON, *Mem. Mus. Comp. Zool. Harvard*, vol. xviii. pp. 204, 207.1901. ,, ALCOCK, *Indian Deep-Sea Macrura*, p. 45.1904. ,, RATHBUN, *Harriman-Exp.*, "Decap. Crust.," p. 147.1906. ,, RATHBUN, *U.S. Fish. Comm. for 1903*, part iii. p. 907.1906. ,, BOUVIER, *Bull. Mus. Océan. Monaco*, No. 80, p. 1.1908. ,, BOUVIER, *Camp. Sci. Monaco*, vol. xxxiii. p. 24.1909. ,, KEMP, *Pr. Zool. Soc. London*, p. 718.1910. ,, (as distinct from *Amalopenæus*), Kemp, *Fisheries, Ireland*, 1908, p. 13.1911. ,, DE MAN, "*Siboga*" *Exp.*, vol. xxxixA. pp. 5, 15.1913. ,, DE MAN, "*Siboga*" *Exp.*, vol. xxxixA., pls. i., ii.

In 1911 DE MAN enumerates fifteen named and two unnamed species assigned to this genus, with their distribution. He also thinks it probable that the species from the Bay of Bengal, referred by ALCOCK to *G. parvus*, Bate, is distinct from that

species. The list comprises two species originally described by S. I. SMITH as *Amalopenæus elegans* (1882) and *A. valens* (1884), and a third which SMITH described, also in 1884, as *Benthesicymus ? carinatus*.

In this genus the male petasma or "andricum," where, as in many cases, it has been carefully figured, appears to be very serviceable for specific distinction.

*Gennadas kempii*, n. sp.

Plate XXVII.

In spite of its mutilated condition, the specimen here described seems properly separable from other known species. It makes a near approach to *G. elegans* in the outlines of the carapace, in the proportions of the third peræopod, and in having only one pair of spines at apex of the strongly sulcate telson. But there are several differences. The second joint of the first antennæ is not shorter than the third. The scale of the second antennæ is produced well beyond the little lateral tooth. The curved spines behind the narrow apical process of the endopod in the second maxilla are four in number, two much more curved than the others. In the first maxilliped the exopod is shorter instead of longer than the endopod. The petasma is nearer to that of *G. calmani*, Kemp, than any other that has been figured, but is more truncate; the inner opposed margins are straight, lined with a multitude of little coupling hooks. The first pleon segment is ventrally produced to a sharp point, and in *G. calmani* it is said to carry "a very strong, sharply pointed spine," which may mean the same thing. The apex of the telson is truncate, not rounded, with five plumose setæ between the single pair of spines, as in *G. bouvieri*, Kemp. *G. calmani* has (whether invariably or not is uncertain) eleven setæ between two pairs of spines, subject to the variation of a single pair. It agrees with our species in the four curved spines of the second maxilla, but differs in the longer exopod of the first maxilliped. Both species belong to the group which have the fourth joint of the third peræopod longer than the fifth, and in both the fingers of the chela in that limb are subequal to the palm, but in *G. calmani* the chela is half as long as the fifth joint, whereas in the new species it is more than half as long. Other differences between these closely connected species will be found in the two pairs of antennæ. In the first pair *G. calmani* has the second joint not equal to the third, but "fully three-quarters the length" of it; in the second pair the scale is scarcely at all produced beyond the lateral tooth. Through the condition of the respective specimens many features are not available for comparison. As described and figured by BATE for his *G. parvus*, the second pleopods have at the apex of the peduncle on the inner side two membranous leaf-like appendages. In BATE's figure these show setules on the outer margin distally. In our species one of these is somewhat bean-shaped, without any armature; the other, lying between it and the endopod, is oval, having much of its inner and distal margin fringed with little, somewhat curved, spinules. One of the stations at which *G. parvus* was obtained by the

*Challenger* was in lat.  $37^{\circ} 49' N.$ , long.  $166^{\circ} 37' W.$ , mid ocean, North Pacific, trawled from the reputed depth of 3050 fathoms, which, as will be seen, exceeds that assigned to the *Scotia* species, here named out of respect to Mr STANLEY KEMP.

*Locality*.—Lat.  $39^{\circ} 48' S.$ , long.  $2^{\circ} 33' E.$ , trawl 2772 fathoms; Station 468.

A fragment of another *Gennadas* was taken at Station 450, lat.  $48^{\circ} S.$ ,  $9^{\circ} 50' W.$ , in company with *Petalidium foliaceus*. It belongs not improbably to *Gennadas parvus*, Bate.

#### Family LEUCIFERIDÆ.

1837. "*Leucifériens*," Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. pp. 451, 467.  
 1852. *Sergestida*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 601; "*Luciferida*," pp. 636, 668.  
 1905.     ,,     Stebbing, Gilchrist's *Marine Invest.*, "S.A. Crust.," part iii. p. 80.

Under the last reference an extended notice is supplied of the bibliography of this family, in which the primary genus bore the preoccupied name *Lucifer*, changed to *Leucifer* by MILNE-EDWARDS.

#### Genus *Petalidium*, Bate.

1881. *Petalidium*, Bate, *Ann. Nat. Hist.*, ser. 5, vol. viii. pp. 172, 194.  
 1888.     ,,     Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 348.  
 1896.     ,,     H. J. Hansen, *Pr. Zool. Soc. London*, p. 936.  
 1903.     ,,     H. J. Hansen, *Pr. Zool. Soc. London*, p. 52.

HANSEN accepts two species for this genus, *P. foliaceus*, Bate, and *P. obesus* (Krøyer), the former having no branchia above the fourth peræopod, but the latter having at least a rudimentary one in that position. He considers that *Petalidium* is distinguished from *Sergestes* chiefly by the structure of the pleurobranchial plumes, feebly developed on the second maxilliped, most developed over the first and second peræopods, but less so over the third maxilliped and third peræopod. The pleurobranchial plumes in *Petalidium*, he points out, have a much lower number of rows, a much lower number of plates in the rows, with the plates much larger, curved upwards, and looking much more independent than those in *Sergestes*.

#### *Petalidium foliaceus*, Bate.

#### Plate XXVIII.

1881. *Petalidium foliaceum*, Bate, *Ann. Nat. Hist.*, ser. 5, vol. viii. p. 194.  
 1888.     ,,     ,,     Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 349, pl. lx.  
 1896.     ,,     ,,     Hansen, *Pr. Zool. Soc. London*, p. 936.  
 1903.     ,,     ,,     Hansen, *Pr. Zool. Soc. London*, p. 52, pl. xi. fig. 1, a-g.

Almost all the figures of this rare species had been drawn before I realised its identity with that partially described by BATE and HANSEN. Attention may be called to the agreement in this plate with HANSEN'S fig. 1a of the rostrum. BATE had already noticed the small tuberele adjoining the dark pigment of the eye. HANSEN notes as at least sometimes present another tuberele, exceedingly small, lower down, both being represented in his fig. 1d, and well seen in the *Scotia* speci-



men. BATE speaks of the first joint of the first antennæ as furnished with a short, obtusely pointed stylocerite. HANSEN'S fig. 1*b* shows it, as I do, with a very small acute tooth near the middle of the outer margin. The mandibles are not in agreement with BATE'S figure, except in regard to the penultimate joint of the palp, which is of substantial proportions, not slender, as the mandibular palp is generally said to be in species of *Sergestes*. The first and second maxillæ are not notably different from those in the last-named genus. In describing the first maxillipeds, BATE speaks of the third or outer branch as free from hairs, which is at any rate not always the case, though they might easily be missing by accident. The substantial character and strongly spinose armature of the second maxillipeds may be judged from the figure. The third, fourth, and fifth joints are subequal in length, while the sixth is rather longer than any one of them. The seventh joint is short, blunt, narrow at the base, widening towards the middle.

In the first peræopods the third and fifth joints are nearly equal in length, and similarly the much more elongate fourth and sixth, both which are strongly spined, the sixth faintly showing division into about fifteen jointlets. The fifth joint has on its inner margin four spines of very conspicuous length, and distally a group of short curved spines to antagonise with a similar group at the base of the sixth joint, as in the genus *Sergestes*. The fourth peræopod is long and slender, the fifth slender and short.

The *Challenger* specimens were all females or not fully adult. It is therefore of interest now to have one with the petasma of the male uninjured. Its complicated structure will be best understood from the figure, although that omits one of the median plates which are in contact at the base, and only hints at an additional pair lying beneath the slender terminal pair and for the most part concealed by it. The numerous hooks with which the various projecting lobes are studded probably resemble those which Professor S. I. SMITH has figured for his *Sergestes robustus*, enlarging them one hundred diameters (*U.S. Rep. Comm. Fish*, 1884, pl. viii. fig. 6*a*, 6*b*). The second pleopod of a specimen which I take to be a female has, in attachment to the short inner branch, a narrowly laminar appendage of considerable length, distally furnished with setæ on the surface and apically with several unequal spines. The inner branch of the uropods is considerably longer than the telson, but shorter than the outer branch. In every case, as with the scale of the second antennæ, this outer branch is apically damaged, the existing portion having the outer margin smooth and unarmed. The telson in the basal half is more or less parallel-sided, the distal half strongly tapering and ending abruptly in a sharp point, the distal part setose at the sides.

Length of specimen figured 42.5 mm., of which the carapace occupied 11.5 mm. In lateral view the hind margin of the carapace forms a double curve. Among the pleon segments the shortness of the fifth and length of the sixth are conspicuous.

*Locality*.—Lat. 48° 00' S., long. 9° 50' W.; depth 1332 fathoms; Station 450.

## Tribe CARIDEA.

1852. *Caridea* (part), Dana, *U.S. Expl. Exp.*, vol. xiii. p. 528.

## Family PALÆMONIDÆ.

1819. *Palæmonidæ* (part), Leach, in Samouelle's *Entomologist's Compendium*, p. 96.  
 1852. *Palæmoninæ* (subfam.), Dana, *U.S. Expl. Exp.*, vol. xiii. p. 569.  
 1888. *Palæmonidæ*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 711, 778.  
 1890.     ,,     Ortmann, *Zool. Jahrb.*, vol. v. p. 512.  
 1894.     ,,     Alcock and Anderson, *J. Asiat. Soc. Bengal*, vol. lxxiii. part 2, No. 3, p. 17.  
 1897.     ,,     Ortmann, *Revista do Museo Paulista*, N. 2, p. 186.  
 1901.     ,,     Rathbun, *U.S. Fish. Comm. for 1900*, vol. ii. p. 123.  
 1902.     ,,     de Man, *Abhandl. Senckenb. Gesellsch.*, vol. xxv. part iii. p. 763.  
 1906.     ,,     Kemp, *Fisheries, Ireland*, 1905, p. 127.  
 1907.     ,,     Borradaile, *Ann. Nat. Hist.*, ser. 7, vol. xix. p. 472.  
 1912.     ,,     de Man, *Ann. Soc. Zool. Belgique*, vol. xlvi. p. 197.

Those who study the authorities above cited will find that different views have been and to some extent still are held as to the proper contents of this family. The material, however, on this occasion at my disposal does not require, and would not facilitate, any thorough discussion of the subject.

Genus *Leander*, Desmarest.

1849. *Leander*, Desmarest, *Ann. Soc. Entom. France*, sér. 2, vol. vii. pp. 87, 91.  
 1860.     ,,     Stimpson, *Pr. Ac. Sci. Philad.*, vol. xii. p. 40 (109).  
 1888.     ,,     de Man, *Arch. Naturg.*, vol. liii. p. 559.  
 1888. *Palæmon*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 781.  
 1890. *Leander*, Ortmann, *Zool. Jahrb.*, vol. v. p. 513.  
 1893.     ,,     Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 246.  
 1901. *Palæmon*, Rathbun, *U.S. Fish. Comm. for 1900*, vol. ii. pp. 123, 125.  
 1906. *Leander*, Kemp, *Fisheries, Ireland*, 1905, p. 127.

*Leander squilla* (Linn.).

1758. *Cancer squilla*, Linn., *Systema Naturæ*, ed. 10, p. 632.  
 1798. *Palæmon squilla*, Fabricius, *Suppl. Ent. Syst.*, p. 403.  
 1884. *Leander squilla*, Czerniavsky, *Mat. zoogr. Pont. comp.*, fasc. ii. p. 48 (with synonymy).  
 1890.     ,,     ,,     Ortmann, *Zool. Jahrb.*, vol. v. p. 522, pl. xxxvii. fig. 15.  
 1906.     ,,     ,,     Kemp, *Fisheries, Ireland*, 1905, pp. 129, 132, pl. xx. fig. 3, a-e.

CZERNIAVSKY supplies a vast bibliography and names two varieties. KEMP gives a synoptic view of the characters which separate this species from *L. serratus* (Pennant) and *L. adspersus* (Rathke). In the latter two the palp of the mandible is three-jointed, while in *L. squilla*, as discovered by CALMAN, it is two-jointed, a feature which it shares with *L. tenuirostris* (Say). The rostrum is armed above with from seven to ten teeth, below with three, or rarely two or four, and has a bifid apex. The telson agrees with that described later on for *L. affinis*. In the first antennæ the shortest flagellum has the number of free joints subequal to that of the coalesced, in the specimen examined the number being in each case eleven, and the two sets equal in length. KEMP speaks of the shorter ramus as fused to the longer for about

two-fifths of its length. In the second maxillipeds the last joint reaches beyond the penultimate without making a neatly continuous curve. The second peræopods reach beyond the scale of the second antennæ by the whole length of the sixth joint, which is a little longer than the fifth, as the fifth is than the fourth; the seventh joint is rather more than half as long as the palm of the sixth.

*Locality*.—St. Vincent, Porto Grande; Station 24.

*Leander affinis* (Milne-Edwards).

1837. *Palaemon affinis*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 391.  
 1852. *Palaemon affinis*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 584; (1855) pl. xxxviii. fig. 5, a-g.  
 1888. " " Bate, *Rep. Voy. " Challenger,"* vol. xxiv. p. 782, pl. cxxviii. fig. 5, a, d, i.  
 1888. " " Witmer Stone, in Heilprin, *Pr. Ac. Sci. Philad.*, pp. 318, 322.  
 1890. *Leander affinis*, Ortmann, *Zool. Jahrb.*, vol. v. p. 521.  
 1893. " " Ortmann, *Ergebn. Plankton-Exp.*, vol. ii., G. b., p. 47.  
 1901. *Palaemon affinis*, Rathbun, *U.S. Fish. Comm. for 1900*, vol. ii. p. 125.  
 1910. *Leander squilla*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 386.

This species was named for its affinity to *Leander squilla*, rather inappropriately as it has proved, since the latter species belongs to the group which has the mandibular palp biarticulate, while here it is three-jointed. Moreover, in the first antennæ the shortest flagellum has the number of free joints greater than that of the coalesced joints, which is not the case in *L. squilla*. BATE observes in regard to his Australian specimens, as a remarkable circumstance, "that neither of the flagella of this pair of antennæ has attached to it any of the membranous cilia so common in the order." In our specimens the short flagellum is well provided with the usual filaments, but they are short, and might easily escape notice. DANA supplies some good figures of the mouth-organs. But the outermost division of the first maxilla is represented much shorter than it is in our specimens. It is possible that DANA saw it foreshortened. The continuity of curve between the last two joints of the second maxillipeds is well shown in DANA'S figure. The terminal joint of the third maxilliped is represented both by BATE and DANA as relatively shorter than it is in our specimens, especially in the larger ones. As to the second peræopods, DANA gives the "fingers much less than half the length of the hand"; Miss RATHBUN gives "palm 1.5 times as long as the fingers"; BATE allows the chela to be "about half the length of the palm"; his figure, however, is in near agreement with Miss RATHBUN'S estimate. In a species ranging from Porto Rico to New Zealand some amount of variation may well be expected. DANA describes the apex of the telson by saying "extremity of abdomen very narrow, having three minute spinules, and between them two longish setæ." BATE, speaking of the telson, says: "On each side within the margin are three small spinules, and the distal extremity is fringed with a few hairs." In our specimens the telson ends in a spine-like median process, the base of which joins the lateral margins by slightly oblique lines, with a spine at each angle, and between these spines and the median process are two other spines nearly three

times as long, separated by two densely plumose setæ, nearly as long as the spines and emerging from below the median process. The length of the species is given by BATE as 24 mm. for the male and 33 mm. for the female; by Miss RATHBUN as 35.5 mm. for an ovigerous female; by DANA as two inches for his New Zealand specimen; and though some of the South African specimens do not attain to this size, others exceed it, reaching  $2\frac{3}{4}$  inches.

*Locality*.—Saldanha Bay, May 19, 1904, 8–10 fathoms; Reitz Bay, May 20, 1904, 5 fathoms; Station 482.

*Leander tenuicornis* (Say).

1818. *Palæmon tenuicornis*, Say, *J. Ac. Sci. Philad.*, vol. i. part ii. p. 249.  
 1837. *Palemon natator*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 393 (*P. tenuirostre*, p. 395).  
 1849. *Leander erraticus*, Desmarest, *Ann. Soc. Entom. France*, sér. 2, vol. vii. p. 92, text-fig. on p. 93.  
 1860. *Leander natator*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. xii. p. 40 (109).  
 1879. *Leander tenuicornis*, S. I. Smith, *Tr. Connect. Aci.*, vol. v. p. 122.  
 1884. *Palæmon tenuirostris*, Carus, *Prodr. Faunæ Mediterranæ*, part ii. p. 474.  
 1888. *Leander natator*, de Man, *Arch. Naturg.*, vol. liii. p. 563.  
 1888. *Palæmon natator*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 784, pl. cxxviii. figs. 6, 7.  
 1890. *Leander natator*, Ortmann, *Zool. Jahrb.*, vol. v. p. 525.  
 1893. *Leander tenuicornis*, Ortmann, *Ergebn. Plankton-Exp.*, vol. ii., G. b., p. 48.  
 1908. „ „ Verrill, *Tr. Connect. Aci. Sci.*, vol. xiii. pp. 326, 377.

VERRILL mentions this species along with *Latreutes fucorum* and the crabs *Lupa sayi*, Gibbes, and *Planes minutus* (Linn.), as constant tenants of the Gulf weed. ORTMANN agrees with DE MAN in regarding DE HAAN'S *Palæmon latirostris* as a synonym of this species, although DE HAAN, like DESMAREST, describes the lower margin of the rostrum as without teeth, while SAY gives the rostrum eleven or twelve teeth above and six or seven below. A dissected specimen shows twelve above and six below; the teeth in this species are much beset with setæ, especially on the lower margin. Of the lateral spines of the carapace the lower one stands back from the margin, instead of adjoining it as in *L. squilla* and *L. affinis*. The eyes in several specimens retain traces of two parallel colour bands across the ophthalmic area. The first antennæ have the shortest flagellum united with its partner for a very short space. The mandibles have a very slender two-jointed palp, the second joint much the longer. The first maxillæ differ very slightly from those of the other two species, except that the apical series of spines on the inner plate is not continued on to the lateral margin. In the second maxillipeds the terminal joint is produced well beyond the penultimate, with no continuity of curve between them. In the dissected specimen the first peræopods have the fourth joint longer than the fifth, which is slightly shorter than the sixth; the fingers of the chela are considerably longer than the palm. In the second peræopods also the fourth joint is a little longer than the fifth, which is decidedly shorter than the sixth, but here the fingers are only a little longer than the somewhat inflated palm. The telson ends apically much as in the other species, except that the long spines are at least five times as long as those at the angles, and, though separated by the median process, beyond it

they come close together, covering the median setæ. Among our specimens one had the second peræopods of unequal size, in one both first and second peræopods were represented only by blunt-ended, few-jointed stalks, in some cases only one of the second pair was present. It is likely that these powerful grasping limbs are much subject to injury. The length of an ovigerous female was 40 mm. between apices of rostrum and telson.

*Localities.*—Gulf weed, June 29, 1904, lat. 29° 54' N., long. 34° 10' W.; June 30, 1904, lat. 32° 11' N., long. 34° 10' W.; and July 1, 1904, lat. 33° 53' N., long. 32° 27' W.; Stations 537, 538, 539.

#### Family HIPPOLYTIDÆ.

1888. *Hippolytidæ*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 503, 576.  
 1893. " Stebbing, *Hist. Crust., Internat. Sci. Ser.,* vol. lxxiv. p. 233.  
 1901. " Rathbun, *U.S. Fish Comm. for 1900,* vol. ii. p. 113.  
 1906. " Calman, *Ann. Nat. Hist.,* ser. 7, vol. xvii. p. 30.  
 1907. " Borradaile, *Ann. Nat. Hist.,* ser. 7, vol. xix. p. 472.  
 1907. " Calman, *Nat. Antarct. Exp.,* vol. ii., "Crust.," p. 1.  
 1910. " Kemp, *Fisheries, Ireland,* 1908, p. 99.  
 1912. " G. O. Sars, *Arch. Naturv.,* vol. xxxii., Nos. 5, 7, 9.

#### Genus *Hippolyte*, Leach.

1814. *Hippolyte*, Leach, *Edinb. Encycl.,* vol. vii. p. 431.  
 1860. *Virbius*, Stimpson, *Pr. Ac. Sci. Philad.,* p. 35 (*prodrromus*, p. 104).  
 1878. *Caradina*, Bate, *J. Roy. Institution Cornwall,* vol. v. p. 486.  
 1888. *Hippolyte*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 576, 587.

In his *Challenger* Report BATE recognises that as *Hippolyte* was originally founded for the single species *H. varians*, STIMPSON, by including that species in *Virbius*, condemned his own genus as a synonym to that named by LEACH, and for the same reason among others BATE saw that his isolation of a species as *Caradina varians* (Leach) must be withdrawn. At the same time he notices that MILNE-EDWARDS' genus is *Caridina*, not *Caradina*, but prints *Verbius* in place of *Virbius*.

In this genus the mandible has a cutting edge and molar but no palp. The first peræopods have a short stout chela, the second have a more slender chela and a triarticulate wrist.

#### *Hippolyte acuminatus* Dana.

1852. *Hippolyte acuminatus*, Dana, *U.S. Expl. Exp.,* vol. xiii. p. 562; (1855) pl. xxxvi. fig. 1, a-e.  
 1860. *Virbius acuminatus*, Stimpson, *Pr. Ac. Sci. Philad.,* vol. xii. p. 36 (105).  
 1888. *Hippolyte bidentatus*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 591, pl. cv. figs. 1, 2.  
 1893. *Virbius acuminatus*, Ortmann, *Ergebn. Plankton-Exp.,* ii. G. b., p. 46.

This species has been efficiently described and figured by SPENCE BATE, who named it *bidentatus*, evidently in allusion to the pair of teeth extending subdorsally from the hind margin of the fifth pleon segment. DANA takes no notice of this character. But these little pellucid processes are not very easy to observe, and the probability is that DANA overlooked them. Though a single tooth on the under side of the rostrum appears to be usual, one of the *Scotia* specimens has three teeth

in that position. BATE says that the stouter flagellum of the first antennæ is "divided into about ten or twelve articuli," which agrees with the *Scotia* specimen, that having eleven joints in one member of the pair and twelve in the other; but in both, contrary to BATE'S figure, the two terminal joints are narrow, these and the preceding joint being without filaments. DANA describes this flagellum as five- or six-jointed, and figures it accordingly. He assigns twelve to fourteen joints to the longer flagellum, BATE gives it twelve or fifteen, and our specimen shows seventeen. DANA gives the length as varying from three-quarters of an inch to an inch, and this agrees with the *Scotia* specimens.

*Localities.*—Gulf weed, lat.  $18^{\circ} 43' N.$ , long.  $27^{\circ} 46' W.$ ;  $27^{\circ} 23' N.$ ,  $33^{\circ} 06' W.$ ;  $32^{\circ} 11' N.$ ,  $34^{\circ} 10' W.$ ; Stations 532, 536, 538.

#### Genus *Latreutes*, Stimpson.

1860. *Latreutes*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. xii. p. 27 (96).  
 1888. ,, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 576, 581.  
 1890. ,, Ortmann, *Zool. Jahrb.*, vol. v. p. 505.  
 1893. ,, Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 234.  
 1893. ,, Ortmann, *Ergebn. Plankton-Exp.*, vol. ii. G. b., p. 47.  
 1901. ,, Rathbun, *U.S. Fish. Comm. for 1900*, vol. ii. p. 114.  
 1906. ,, Calman, *Ann. Nat. Hist.*, ser. 7, vol. xvii. pp. 31, 33.  
 1907. ,, de Man, *Tr. Linn. Soc. London*, vol. ix. part xi. p. 421.  
 1914. ,, Balss, *Abhandl. K. Bayer. Ak. Wiss.*, vol. ii. part x. p. 46.

ORTMANN and CALMAN include part of BATE'S genus *Platybema* under *Latreutes*, and BATE'S *Platybema rugosus* is transferred by CALMAN to a new genus *Trachycaris* on the ground that *Platybema* was nullified through BATE'S erroneous supposition that DE HAAN'S *planirostris* was in generic agreement with *rugosus*. Had he left DE HAAN alone, his genus would have been unimpeachable. According to ORTMANN, 1893, confirmed by CALMAN, 1906, STIMPSON was in error in attributing an epipod to each of the first four peræopods instead of only the first three. It may be noticed also that MILNE-EDWARDS, in describing the type species, assigns only two subdivisions to the wrist of the second peræopods, whereas there are three.

#### *Latreutes fucorum* (Fabricius).

1798. *Palæmon fucorum*, Fabricius, *Suppl. Ent. Syst.*, p. 404.  
 1837. *Hippolyte ensiferus*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 374.  
 1852. ,, ,, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 562.  
 1860. *Latreutes ensiferus*, Stimpson, *Pr. Ac. Sci. Philad.*, vol. xii. p. 27 (96).  
 1888. ,, ,, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 583, pl. civ. fig. 1, *d-i, k-m, q.*  
 1890. ,, ,, Ortmann, *Zool. Jahrb.*, vol. v. p. 507.  
 1893. ,, ,, Ortmann, *Ergebn. Plankton-Exp.*, vol. ii. G. b., pp. 47, 60.  
 1901. ,, ,, Rathbun, *U.S. Fish. Comm. for 1900*, vol. ii. p. 114.  
 1906. ,, ,, Calman, *Ann. Nat. Hist.*, ser. 7, vol. xvii. p. 33.  
 1910. *Hippolyte ensifera*, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 390.

BATE says: "*Palæmon fucorum*, Fabricius (*Suppl. Entom. Syst.*, p. 404), undoubtedly belongs to this genus." He was deterred from identifying it with the

present species because FABRICIUS describes the carapace as smooth, without mention of the little tooth on the gastric region. But, at the date when FABRICIUS wrote, such a tooth might easily have escaped notice or not have been thought worth mentioning as interfering with the general smoothness of the carapace. On the other hand, among the Malacostraca frequenting the Gulf weed there is, I believe, no other species with a smooth, apically quinquentate rostrum such as FABRICIUS assigns to his *P. fucorum*, so that I cannot agree with ORTMANN'S verdict in 1893 that it is a quite apocryphal species. So far as I have observed, the serration of the apex has five points more frequently than any other number, but the variation extends from one to nine, the only number within these limits that I have not found being eight. The antero-lateral corners of the carapace are serrate, according to BATE with five or six points, according to RATHBUN with five to eight. In one of our specimens there were seven points on one corner and eight on the other. Another specimen has eleven points on one side; those on the other side were not counted. FABRICIUS gives the size as only a third of *P. squilla*, which well suits the present identification, as the length of *L. ensiferus* varies in different estimates from half an inch to an inch. Of those taken at Station 539, it was recorded that one was quite blue, two others brown and blue.

*Localities.*—Gulf weed, Stations 532, 533, 537, 538, 539, between 18° 43' N., 27° 46' W., and 33° 53' N., 32° 27' W.

Some specimens were seen to be infested by the minute Bopyrid *Bopyrina latreuticola* (see p. 301).

#### Genus *Nauticar*is, Bate.

1888. *Nauticar*is, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. xii, 577, 602.

1893. ,, Stebbing, *Hist. Crust.,* Internat. Sci. Ser., vol. lxxiv. p. 234.

1902. *Merhippolyte*, Hodgson, "*Southern Cross*" *Exp.,* "Crustacea," p. 233.

1906. *Nauticar*is, Calman, *Ann. Nat. Hist.,* ser. 7, vol. xvii. p. 30.

In CALMAN'S synopsis of the *Hippolytidae* this genus is distinguished as having arthrobranchiæ at the bases of the first four pairs of peræopods, mandibles with palp but without cutting edge, wrist or fifth joint of second peræopod with more than seven subdivisions, and a movable spine at the base of the uropods. The last of these characters seems to be obscurely expressed, since the spine-like process on the peduncle of the uropods is not movable, and the movable spine is at the infero-lateral hind corner of the sixth pleon segment. This spine is said by BATE to be absent from his species *N. unirecedens*, though he includes it in his account of the genus. But DE MAN (1907) and CALMAN agree in identifying *N. unirecedens* with the earlier *Hippolysmata vittatus*, Stimpson. Dr CALMAN points out that *Hippolyte magellanicus*, A. Milne-Edwards, 1891, belongs to *Nauticar*is, but differs from other species in possessing exopods on the third maxillipeds. He finds that *Merhippolyte australis*, Hodgson, 1902, is synonymous with *N. marionis*, Bate, HODGSON having been misled partly by my acceptance of BATE'S error as to the second peræopods and partly by

a wrong view of the mandibles. HODGSON had already noticed the similarity between his species and that of A. MILNE-EDWARDS'.

Here, as in various other instances, the armature of the upper and lower margins of the rostrum seems to be so variable within each species that it is an unsafe guide for specific distinction.

*Nauticaris brucei*, n. sp.

Plate XXIX.

Along with a general resemblance to BATE'S *N. marionis*, the present species exhibits some rather notable differences in detail. In the first two specimens examined the lower margin of the rostrum showed four teeth, but a third specimen had only three. A fourth specimen had the hindmost tooth on the carapace more remote from the succeeding tooth than in other specimens, a character for which BATE named the species *N. unirecedens*, mentioned above. The frontal margin of the carapace in the new species has only the antennal tooth, without that of the infero-lateral angle seen in *N. marionis* and more conspicuously in *N. magellanicus*. The eyes are much broader at the base than those figured by BATE for *N. marionis*. In the first antennæ the stylocerite does not nearly reach the extremity of the first joint. The three-jointed palp of the mandible is relatively much smaller than that figured for the species compared. The first maxillipeds have the termination of the endopod long and distinctly three-jointed, not a short simple process as figured by BATE for *N. marionis*. For his *N. australis* HODGSON says, "The endopodite is a two-jointed appendage with a terminal claw," and, judging by Mrs SEXTON'S figure, this would seem very distinct both from the present species and from BATE'S. In the second maxillipeds the fourth joint, much shorter than the third, is quite distinct, as the muscles sufficiently attest, but probably the differences in BATE'S account of his species are due to imperfect observation. The third maxillipeds have a slight, easily detachable exopod. The slender second peræopods have fifteen subdivisions of the wrist, those at the base feebly indicated. The apex of the telson has a pair of plumose setæ between two long spines which are flanked by a pair of short ones. Length of specimen figured in bent position 15 mm., straightened out over 20 mm.

*Locality*.—Gough Island, depth 100 fathoms; Station 461.

Specific name given out of respect to Dr W. S. BRUCE, leader of the *Scotia* Expedition.

*Nauticaris magellanicus* (A. Milne-Edwards).

1891. *Hippolyte magellanicus*, A. Milne-Edwards, *Mission de Cap Horn*, "Crust," p. 46, pl. v. figs. 2, 2a-i.

1902. *Merhippolyte magellanicus*, Hodgson, "*Southern Cross*" *Exp.*, "Crustacea," p. 235.

1906. *Nauticaris magellanicus*, Calman, *Ann. Nat. Hist.*, ser. 7, vol. xvii. p. 31.

According to CALMAN this species "differs from the other species of the genus in possessing exopods on the third maxillipeds." As already observed, a rudimentary exopod is found in the small new species *N. brucei*. Here the exopod, though short,



is many-jointed and furnished with plumose setæ. Apart from this it would be difficult to separate this form from HODGSON'S *Merhippolyte australis*, which CALMAN has identified with BATE'S *Nauticaris marionis*.

The teeth continued from the carapace along the upper margin of the rostrum are given by MILNE-EDWARDS as six or seven, with one or two below. Our specimen has eight above and one below. The stylocerite of the first antennæ reaches beyond the main body of the first joint. The scale of the second antennæ extends beyond the rostrum. The three-jointed palp of the mandibles is furnished on all the joints with numerous setiform spines, the first joint much wider and longer than the second, the second much wider but little longer than the third. In the first maxillipeds the last three joints of the endopod are very different from those of *N. brucei*, the first of them broad, fringed on the inner margin with eleven long setæ; the second longer, narrower, curved, somewhat similarly fringed; the third very short and narrow, tapering, straight, tipped with a short seta. In the third maxillipeds the exopod is about 2.5 mm. long, while the last joint of the endopod measures about 8 mm. On one of the second peræopods fourteen components of the wrist are found. In the spine armature of the seventh joint in the simple legs there are slight differences between this species and *N. brucei*, but the specimens being so different in size, no importance can be attached to these. Similarly, it may be doubted whether slight variations in the armature of the telson have any specific value, but the larger apical pair of spines are relatively much longer in the smaller of the two forms. The carapace of the present species measures 14 mm. from apex of rostrum to the middle of the concave hind margin; the scale of the second antennæ is fully 6 mm. long.

*Locality*.—Port Stanley, Falkland Islands; Station 118.

#### Family PASIPHÆIDÆ.

1852. *Pasiphæidæ*, Dana, *U.S. Expl. Exp.*, vol. xiii. pp. 532, 536.  
 1884. *Pasiphæidæ*, S. I. Smith, *U.S. Fish. Comm. for 1882*, p. 381.  
 1888. *Pasiphæidæ*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. 481, 857.  
 1890. ,, Ortmann, *Zool. Jahrb.*, vol. v. p. 463.  
 1893. *Pasiphæidæ*, Wood-Mason and Alcock, *Ann. Nat. Hist.*, ser. 6, vol. xi. p. 161.  
 1893. *Pasiphæidæ*, Stebbing, *Hist. Crust.*, Internat. Sci. Ser., vol. lxxiv. p. 251.  
 1895. *Pasiphæidæ*, Faxon, *Mem. Mus. Comp. Zoöl.*, vol. xviii. p. 173.  
 1901. *Pasiphæidæ*, Alcock, *Catal. Indian Deep-Sea Macrura*, pp. 55, 57.  
 1902. ,, Rathbun, *Pr. U.S. Mus.*, vol. xxiv. p. 904.  
 1904. ,, Rathbun, *Harriman-Exp.*, "Decapods," p. 19.  
 1906. ,, Rathbun, *U.S. Fish. Comm. for 1903*, part iii. p. 927.  
 1907. ,, Coutière, *Bull. Inst. Océanogr. Monaco*, No. 104, pp. 1, 12 (larval forms).  
 1910. ,, Kemp, *Fisheries, Ireland, 1908*, pp. 35, 36.

The genera of this family may be briefly distinguished as follows:—

1. {Mandibles without palp, 2.  
 {Mandibles with palp, 3.

- |    |   |   |   |
|----|---|---|---|
| 2. | { | Telson acute or truncate . . . . .  | 1. <i>Pasiphæa</i> , Savigny, 1816.         |
|    |   | Telson with bifid apex . . . . .  | 2. <i>Phye</i> , Wood-Mason, 1893.          |
| 3. | { | Mandibular palp foliaceous . . . . .  | 3. <i>Psathyrocaris</i> , Wood-Mason, 1891. |
|    |   | Mandibular palp slender, 4.   |   |
| 4. | { | Fifth peræopods longer than<br>fourth; second maxillipeds<br>having an epipod . . . . .   | 4. <i>Parapasiphæä</i> , S. I. Smith, 1884. |
|    |   | Fifth peræopods not longer than<br>fourth; second maxillipeds<br>without epipod . . . . . | 5. <i>Sympasiphæa</i> , Alcock, 1901.       |
|    |   |   |   |

Of these genera the first two are closely allied, yet *Phye*, by its incised telson, is different from all the rest, this feature being unfamiliar except in the Schizopoda and some larval forms. The third genus is so different from the others that, as ALCOCK has suggested, it "might perhaps be separated to form a distinct family." *Leptochela*, Stimpson, 1860, agrees with it in having a foliaceous palp to the mandibles, but the palp is one-jointed instead of two-jointed, and other features make its inclusion in the *Pasiphæidæ* open to question. BATE'S imperfectly defined *Orphanina*, 1888, is perhaps not distinct from *Pasiphæa*.

Genus *Phye*, Wood-Mason.

1893. *Phye*, Wood-Mason, *Ann. Nat. Hist.*, ser. 6, vol. xi. p. 164.

1901. *Pasiphæa* (*Phye*), Alcock, *Catal. Indian Deep-Sea Macrura*, p. 61.

The original definition is: "Differs from *Pasiphæä* in the carapace and abdomen being more or less extensively and distinctly carinated dorsally, in the former being armed in front with a pair of branchiostegal spines, and in the telson being forked at the extremity." It is said to include *P. princeps*, Smith; *P. acutifrons*, Bate; and *P. forceps*, A. Milne-Edwards, 1891; and characters are given distinguishing these species from *Phye alcocki* (Wood-Mason), 1891. In 1901 ALCOCK treats it as a subgenus, saying: "Differs from *Pasiphæa* in having the tip of the telson forked. In all other respects, including the number and arrangement of the gills, it agrees with *Pasiphæa*." It should be noticed that *Pasiphæa truncatus*, Rathbun, 1906, and *P. flagellatus*, Rathbun, 1906, both have the apex of the telson truncate, while in *P. kaiwiensis*, Rathbun, of the same date, the telson has "its tip cut in a very shallow V." Nothing could be more satisfactory if we are looking for missing links or more confusing to the interests of sharp definition between genus and genus.

*Phye scotix*, n. sp.

Plate XXX.

By the elongation of the carina of the carapace to a smooth-pointed process reaching beyond the eyes, this species is distinguished from the other members of the genus. The point of the process is upturned, while in the somewhat similar process

of *Pasiphæa amplidens*, Bate, the point curves downward and does not reach beyond the eyes. From BATE'S specimen part of the peræon and all the pleon were unfortunately missing. In having the fourth joint of the first peræopod smooth and that of the second serrate it agrees with our species, but apart from this there are several differences. The mandibular cutting edge here shows nine to ten teeth, compared with thirteen in *P. amplidens*. The first maxilla of the latter is said to agree closely with that of *P. cristatus*, Bate, which according to the figure has the middle lobe fringed with seven spines and two spinules, against the eighteen spines of the *Scotia* species. Moreover, here the fingers of the second peræopods are fully as long as the palm, and the fourth joint has only seven teeth along the margin, while BATE'S figure shows fifteen teeth along that margin and fingers much shorter than the palm.

The telson is about five times as long as its greatest breadth, narrowing towards the apex and widening a little at the fork, which is occupied by eight pairs of graduated spines. In the first antennæ the acicle does not reach the end of the first joint, which is as long as the second and third combined, the second being considerably shorter than the third; of the two flagella, one for a space is much broader than the other. The scale of the second antennæ is much narrowed at the flattened apex, beyond which the terminal tooth is well produced. The first and second maxillipeds, as noticed by BATE, are as firmly attached as if they together formed a single appendage.

*Localities*.—Lat.  $71^{\circ} 22' S.$ , long.  $16^{\circ} 34' W.$ , depth 1410 fathoms; Station 417, March 18, 1904. A second smaller specimen, with anterior process broken off, was obtained at lat.  $68^{\circ} 32' S.$ , long.  $12^{\circ} 49' W.$ , by the vertical net from surface to 600 fathoms; Station 422, March 23, 1904.

*Phye rathbunæ*, n. sp.

Plate XXXI.

In this species the central carina of the carapace is not produced over the eyes, and the telson is only about three and a half times as long as the greatest breadth, its apical fork fringed with nine pairs of graduated spines, of which the innermost pair is minute. In many respects its proportions differ little from those of the preceding species, but in the first antennæ the flagella are less unequal at the base, and in the second the distal tooth of the scale is less prominent, the middle lobe of the first maxilla is fringed with thirteen spines, the first peræopods have the fourth joint serrate with nine teeth and the fingers more instead of less than half the length of the palm; in the second peræopods the second and third joints as well as the fourth are serrate, the fourth joint having as many as seventeen teeth or small spines, and the fingers are rather shorter than the palm.

The earlier-known species, with which the present is most closely related, is that

which KRÖYER in 1845 described as *Pasiphae tarda*, redescribed and figured under the same name by Mr KEMP in 1910. Here, however, instead of the first five pleon segments and much of the sixth being sharply carinate dorsally, the earlier segments show no carina at all and on none is the carina sharply developed. In the fourth peræopods the sixth joint is three-quarters the length of the fourth, instead of less than half, as in *P. tardus*, and in the fifth pair the sixth joint is decidedly shorter than the fourth, not about equal to it. In some other respects there may be traced divergence between the two species, but with only one specimen of the new form available, it is inexpedient to lay too much stress on minutiae. The distribution of KRÖYER's species extends northwards to Davis Straits and the coasts of Greenland, but according to KEMP lat.  $51^{\circ} 54' N.$  is the most southern locality from which the species has been recorded in East Atlantic waters, a very different part of the globe from that in which the *Scotia* specimen was obtained.

*Locality.*—Lat.  $48^{\circ} 00' S.$ , long.  $9^{\circ} 50' W.$ ; depth 1332 fathoms; Station 450.

The specific name is given out of respect to Miss M. J. RATHBUN, the distinguished American carcinologist.

A species possibly belonging to this family was taken in lat.  $39^{\circ} 48' S.$ , long.  $2^{\circ} 33' E.$ ; depth 2645 fathoms; Station 468. Unluckily it is represented only by the pleon, and that wanting the first pleopods. It is worth mentioning, as the remaining pleopods by their great length and slenderness make some approach to those in the genus *Psathyrocaris*, although here the exopod is scarcely more than twice the length of the endopod. The sixth segment of the pleon is long and clearly carinate; the telson has two dorsal carinae, which are rather wide apart at the base. The exopod of the uropods is elongate.

#### Family NEMATOCARCINIDÆ.

- |       |                           |  |
|-------|---------------------------|--|
| 1884. | <i>Nematocarcininae</i> , | S. I. Smith, <i>U.S. Fish Comm. for 1882</i> , p. 368.                   |
| 1888. | <i>Nematocarcinidæ</i> ,  | Bate, <i>Rep. Voy. "Challenger,"</i> vol. xxiv. pp. xiii, 481, 927.      |
| 1893. | „                         | Stebbing, <i>Hist. Crust.</i> , Internat. Sci. Ser., vol. lxxiv. p. 249. |
| 1901. | „                         | Alcock, <i>Catal. Indian Deep-Sea Macrura</i> , pp. 56, 85.              |
| 1910. | „                         | Kemp, <i>Fisheries, Ireland</i> , 1908, pp. 35, 75.                      |

ALCOCK remarks that "the *Nematocarcinidæ* in a logical system should not be separated as a distinct family, for they are merely *Pandalidæ* in which the first four pairs of thoracic legs have delicate exopodites, and they might be united with the latter family." But as in the *Pandalidæ* "the thoracic legs never have exopodites," and the fifth joint of the second pair is subdivided, while the *Nematocarcinidæ* have that joint simple, and in the three following pairs an interlocking arrangement between the third and fourth joints described by BATE as of "peculiar and unique character," the separation of the two families may very well be upheld.

Genus *Nematocarcinus*, A. Milne-Edwards.

1881. *Nematocarcinus*, A. Milne-Edwards, *Ann. Sci. Nat.* "Zool.," ser. 6, vol. xi. art. 4, p. 14.  
 1882. *Eumiersia*, S. I. Smith, *Bull. Mus. Comp. Zool. Harvard*, vol. x. p. 77.  
 1884. *Nematocarcinus*, S. I. Smith, *U.S. Fish. Comm. for 1882*, p. 368.  
 1888.        ,,        Bate, *Rep. Voy. "Challenger,"* vol. xxiv. pp. lxxxvi, 800.  
 1901.        ,,        Alcock, *Catal. Indian Deep-Sea Macrura*, p. 86.  
 1906.        ,,        Rathbun, *U.S. Fish. Comm. for 1903*, part iii. p. 926.

In this widely distributed genus the names of species are numerous, embracing *N. cursor*, A. Milne-Edwards, 1881; *Eumiersia ensifera*, S. I. Smith, 1882; fifteen names given by BATE in 1888; and *N. agassizii*, Faxon, 1893. In 1901 ALCOCK suggests that BATE's *productus*, *tenuipes*, and *intermedius* may be all the same species, and all not improbably synonymous with the *N. ensifer* of S. I. SMITH, to which KEMP further refers BATE's *Stochasmus exilis* as at most a variety, CALMAN and HANSEN having already shown that the problematic *Stochasmus* was founded on the young of *Nematocarcinus*. ALCOCK questions also the validity of BATE's *N. undulatipes*, supposing that it may be a synonym of *N. cursor*, to which he definitely assigns BATE's *N. paucidentatus* as a variety. The relative size and armature of the rostrum, to which BATE has attached so much importance in distinguishing his species, are of doubtful value for that purpose, as they vary with the age of the specimen and are otherwise inconstant. There is the further inconvenience that the long pointed rostrum, like the enormously long peræopods and the tapering telson, is peculiarly liable to be damaged. The close resemblance among all the accepted species makes it probable that the mouth-organs are practically alike in all. But in regard to these it is important to follow the excellent account and figures given by S. I. SMITH in 1882, rather than those of BATE. In 1893 I accepted BATE's statement that the palp of the mandibles was two-jointed, neglecting SMITH's earlier and correct evidence that it is three-jointed. SMITH also shows that the second maxillipeds are seven- (not six-) jointed, since the dactylus, which BATE overlooks, "is articulated obliquely along the distal end of the propodus." This feature, in which the dactylus has quite ceased to be dactyliform, helps to link the present genus with several others in the tribe *Caridea*. SMITH has noted that in the first maxillipeds the last of the three terminal joints of the endopod is very minute. It is indeed difficult to distinguish, but the two preceding are rather long. BATE's figure consolidates all three into a tolerably short single joint. According to SMITH's description of the first maxillæ of *N. ensifer*, "the endognath is much shorter than the distal lobe of the protognath, and truncated at the extremity, which is armed with a stout seta either side and a third one just below the tip." In our specimens these maxillæ correspond with SMITH's description and figure, except that the "palp" or terminal joint which he calls the endognath has at the inner corner of its truncate apex a long and strong, distally feathered spine, and at the outer corner a much slenderer and shorter spine, and on the surface below the apex a raised

process carrying three or four spines. The second maxillæ in our specimens fully agree with SMITH'S account, except that the fringing setæ of the proximal lobe are much longer relatively than those which he figures. The sharply pointed hind portion of the scaphognath has, as he observes, on its inner margin setæ of remarkable length.

*Nematocarcinus lanceopes*, Bate.

1888. *Nematocarcinus lanceopes*, Bate, *Rep. Voy. "Challenger,"* vol. xxiv. p. 804, pl. cxxxii.

Plate XXXIIB.

The species thus named was taken by the *Challenger* in lat. 60° 52' S. The *Scotia* obtained a number of specimens in lat. 71° 22' S., which agree fairly well with BATE'S account of the rostrum, except that the lower margin for almost the whole length is unmistakably fringed with setules. A single specimen from lat. 39° 43' S. has the rostrum devoid of setules. But the more or less damaged condition of all the specimens makes it difficult to be sure that any two belong to the same species or same variety, while, as above observed, the rostrum itself is subject to variation. In none of the specimens examined could I find the fifth peræopod complete. According to BATE, the scale or scaphocerite of the second antennæ is nearly as long as the rostrum. His figure represents it as much longer. In our specimens it is decidedly shorter. The third maxillipeds do not reach the end of the scale, and are outstripped by the fifth joint of the first peræopods, which almost reaches that end. The second peræopods extend much beyond the rostrum. The telson reaches the end of the uropods. It carries numerous pairs of little dorso-lateral spines, and the narrow apex, besides some setules, has two contiguous spines flanked by a much larger subapical pair. The specimens agree in size with BATE'S specimens, as some of them were about 130 mm. long, allowance being made for broken off apex of rostrum or telson.

*Localities.*—Lat. 71° 22' S., long. 16° 34' W.; depth 1410 fathoms; Station 417. One specimen, probably of the same species, from lat. 39° 48' S., long. 2° 33' E., 2772 fathoms; Station 468.

## SCHIZOPODA.

### Order MYSIDACEA.

#### Suborder LOPHOGASTRIDA.

#### Family EUCOPIIDÆ.

1852. *Eucopida*, Dana, *U.S. Expl. Exp.*, vol. xiii. pp. 601, 609.

1875. *Chalaraspida*, v. Willemoes Suhm, *Tr. Linn. Soc. London*, "Zool.," ser. 2, vol. i. part i. p. 39.

1883. *Eucopiidæ*, G. O. Sars, *Forhandl. Vidensk.*, Christiania, No. 7, p. 9.

1910. ,, H. J. Hansen, "*Siboga*" *Exp.*, vol. xxxvii. p. 19.

The classification here accepted is fully explained in HANSEN'S valuable treatise.

Genus *Eucopia*, Dana.

1852. *Eucopia*, Dana, *U.S. Expl. Exp.*, vol. xiii. pp. 602, 609.  
 1875. *Chalaraspis*, v. Willemoes Suhm, *Tr. Linn. Soc. London*, "Zool.," ser. 2, vol. i. part i. p. 39.  
 1885. *Eucopia*, Sars, *Rep. Voy. "Challenger,"* vol. xiii. part xxxvii. p. 54.  
 1895. ,, Faxon, *Mem. Mus. Comp. Zoöl. Harvard*, vol. xviii. p. 218.  
 1906. ,, Ortmann, *Pr. U.S. Mus.*, vol. xxxi. p. 53.  
 1910. ,, Hansen, "*Siboga*" *Exp.*, vol. xxxvii. p. 19.  
 1912. ,, Hansen, *Mem. Mus. Comp. Zoöl. Harvard*, vol. xxxv., No. 4, p. 187.  
 1913. ,, Tattersall, *Tr. R. Soc. Edinb.*, vol. xlix. part iv. p. 868.

HANSEN accepts only the following four specific names as thus far valid in this genus: *E. australis*, Dana, 1852; *E. unguiculatus*, Suhm, 1875; *E. sculpticauda*, Faxon, 1895; and *E. major*, Hansen, 1910. The extraordinary length of the second, third, and fourth peræopods, the delicate structure of the whole organism, and the great depth from which it is commonly obtained, have combined to make descriptions very imperfect through the provoking mutilation of specimens.

*Eucopia* sp.

## Plate XXXIIA.

As the head, first peræopods, and telson are missing, nothing very definite can be said about this species. The remaining limbs come very near to those which SARS has figured from a young female which he assigns to *E. australis*, Dana (*Rep. Voy. "Challenger,"* "Schizopoda," pl. x. figs. 2, 5, 6, 7). As in our specimen the fifth joint of the fourth peræopod is longer than the sixth, it cannot belong either to SUHM'S species or to FAXON'S. For HANSEN'S *E. major* these limbs are not described, nor are they distinctly figured by DANA. The spiny armature of the sixth and seventh joints does not agree precisely with that shown by SARS. On the sixth joint there are five large spines, the first much the longest, separated from the next by one spinule, each of the others having two intermediate spinules, the last being followed to the apex by eight slender spines. The finger is margined with seven spines, the first very small, succeeded by three successively longer, the fourth followed by three that are smaller and little projecting. The length might be roughly estimated at 30 mm., fourth peræopod 39 mm.

*Locality.*—Lat. 39° 48' S., long. 2° 33' E.; depth 2772 fathoms; Station 468.

Dr TATTERSALL'S report on the Schizopoda of the *Scotia* has just appeared, and I must apologise for having unwittingly interfered with them, but my plate had been finished and the above notice written a long time ago. From the Station 468 above mentioned Dr TATTERSALL found the genus *Eucopia* represented by "one fragmentary specimen, head end only," which he groups with damaged specimens from various other deep-sea southern localities as probably belonging to *E. australis*, Dana, as redefined by HANSEN in 1905.

## STOMATOPODA.\*

1817. "*Stomapodes*," Latreille, *Le Règne Animal*, vol. iii. p. 40.  
 1825. *Stomapoda*, Latreille, *Fam. Nat. du Règne Animal*, p. 282.  
 1843. *Stomatopoda*, Krauss, *Südafrik. Crust.*, p. 60.  
 1910. ,, Stebbing, *Ann. S. Afr. Mus.*, vol. vi. part iv. p. 404.

## Family SQUILLIDÆ.

1803. "*Squillares*," Latreille, *Hist. Nat. Crust. et Ins.*, vol. vi. p. 270.  
 1880. *Squillidæ*, Miers, *Ann. Nat. Hist.*, ser. 5, vol. v. pp. 1, 108.

*Squilla armatus*, Milne-Edwards.

1837. *Squilla armata*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 521.  
 1849. ,, ,, Nicolet, Gay's *Hist. de Chile*, "Zool," vol. iii. p. 223.  
 1891. ,, ,, A. Milne-Edwards, *Miss. Cap Horn*, "Crust.," p. 53, pl. vii.  
 1894. ,, ,, Bigelow, *Pr. U.S. Mus.*, vol. xvii. p. 515, text-figs. 9, 10.  
 1902. ,, ,, Stebbing, Gilchrist's *Mar. Invest.*, "S.A. Crust.," part ii. p. 45.

The *Scotia* obtained a specimen from the stomach of the fish *Genypterus capensis*. The nutritive part of the crustacean was being digested, but the chitinous sheath still clearly showed the specific characters briefly noted by the elder MILNE-EDWARDS, more fully detailed by NICOLET, and again with good figures set forth by ALPHONSE MILNE-EDWARDS.

*Locality*.—Off Dassen Island, between False Bay and Saldanha Bay, South Africa; depth from which the fish was taken, between 30 and 40 fathoms.

Larval genus *Lysioerichthus*.

1886. *Lysioerichthus*, Brooks, *Rep. Voy. "Challenger"*, vol. xvi. part xlv. pp. 16, 116.  
 1895. *Lysierichthus*, Hansen, *Ergebn. Plankton-Exp.*, G. c., p. 75.

This genus contains the larval forms of *Lysiosquilla*, Latreille, 1825.

*Lysioerichthus edwardsii* (Eydoux and Souleyet).

## Plate XXVB.

1837. ? *Erichthus aculeatus*, Milne-Edwards, *Hist. Nat. Crust.*, vol. ii. p. 501, pl. xxviii. fig. 10.  
 1841–1852. *Erichthus edwardsii*, Eydoux and Souleyet, *Voy. "La Bonite"*, "Zool.," vol. i. part ii. p. 260, pl. v. figs. 39–54.  
 1852. *Erichthus palliatus*, Dana, *U.S. Expl. Exp.*, vol. xiii. p. 626, pl. xli. figs. 6, a–e.  
 1872. *Erichthoidina armata*, Claus, *Abhandl. k. Gesellsch. Wiss. Göttingen*, vol. xvi. p. 121, figs. 7, 8.  
 1895. *Lysierichthus edwardsii*, Hansen, *Ergebn. Plankton-Exp.*, G. c., p. 75, pl. vii. fig. 4–4e, 5–5c.

HANSEN, to whom the above synonymy is due, identifies these variously named larval forms as all belonging to the adult *Lysiosquilla glabriusculus* (Lamarck), the most advanced stage being *E. palliatus*, Dana, and the least advanced *E. armatus*, Claus. The *Scotia* specimen shows all the spine-like projections proper to the

\* For other Stomatopoda collected by the *Scotia* see TATTERSALL, *Tr. R. Soc. Edin.*, vol. xlix.



carapace and telson of these juvenile forms. It still carries the obliquely upward-pointing medio-dorsal spine not far from the hind margin of the carapace, this being a spine which has disappeared from the *E. palliatus* stage. Nearly equal to it are the medio-lateral spines, the position of which is noted as distinguishing these larvæ from those of *Lysiosquilla scabricauda* (Lamarek). In a strictly balanced dorsal view they are not visible. The narrow part of the rostrum is subequal in length to the postero-lateral spines, about 4 mm. in each case. The under margin of the rostrum has three microscopic spinules, the middle one the largest; its apical portion is finely serrate on both sides. Adjacent to the eyes is a very small tooth on each side, behind which the carapace widens considerably. A minute denticle points inward from the base of each postero-lateral process, and between these the pleon is clear of the carapace from the third segment. The postero-lateral angles of the fifth pleon segment are acute, as are those of the telsonic segment, of which the hind margin is finely pectinate and fringed with about forty tiny spinules, its centre indented; the sides have each two teeth, which in this specimen are microscopic. The slender, strongly geniculate first maxilliped is minutely chelate, the small thumb having the inner margin distally finely denticulate; some of the spines on the hand are pectinate.

*Locality*.—Lat.  $19^{\circ} 59'$  N., long.  $23^{\circ} 34'$  W.; Station 18.

## ISOPODA EPICARIDEA.

### Family BOPYRIDÆ.

#### Genus *Bopyrina*, Kossmann.

1881. *Bopyrina*, Kossmann, *Zeitschr. Wiss. Zool.*, vol. xxxv. p. 666.  
 1900. „ „ Bonnier, *Trav. zool. Wimereux*, vol. viii. p. 364.

#### *Bopyrina latreuticola* (Gissler).

1845. *Bopyrus squillarum*, Goodsir (not Latreille), *Ann. Nat. Hist.*, vol. xv. p. 75.  
 1882. *Bopyroides latreuticola*, Gissler, *American Naturalist*, vol. xvi. p. 591, text-figs. 6-8 on p. 593.  
 1895. „ „ H. J. Hansen, *Ergebn. Plankton-Exp.*, "Isop.," p. 44.  
 1900. *Bopyrina latreuticola*, Bonnier, *Trav. zool. Wimereux*, vol. viii. p. 370, text-fig. 61, a-c (from Gissler).  
 1913. *Probopyrus latreuticola*, Tattersall, *Tr. R.S. Edinb.*, vol. xlix. part iv. p. 391.

BONNIER says: "This genus is characterised, in the female, by the absence of pleural plates on the pleon, the rudimentary state of the pleopods, of which the last pairs have disappeared, as also the uropods, which, however, are still visible in the male." Of the species here named no males were discovered. The female is less than 2 mm. in length, with the protuberance on one side near the end of the peræon, as delineated by GISSLER.

For the locality see under *Latreutes fucorum*, p. 291.

## EXPLANATION OF PLATES.

## PLATE XXIII.

*Coryrhynchus algicola*, n. sp.

- n.s.* Natural size of specimen figured above in ventral aspect without limbs and in dorsal aspect with first and fifth peræopods on the left and all five peræopods on the right, and garniture of seaweed masking the second peræopod and partly overlapping its neighbour; setæ for the most part omitted.
- r.v.* Ventral aspect of rostrum with the right eye, the longitudinally folded first antenna, second antenna of the right side, and anterior margin of the buccal frame.
- r.d.* Dorsal aspect of the rostrum with its hooked setæ.
- T.* Distal margin of the pleon of the female.
- a.s.* First antenna.
- m., m., mx. 1, mx. 2, mxp. 1, 2, 3.* The two mandibles; first and second maxillæ; first, second, and third maxillipeds.
- prp. 1.* Fingers and part of palm of first peræopod (cheliped).
- prp. 4.* Sixth and seventh joints of fourth peræopod.
- plp.* One of the pleopods of the female, with three of the multitudinous eggs adherent.
- All the figures of separate parts are magnified to a uniform scale.

## PLATE XXIV.

*Planes minutus* (Linn.).

- n.s.* Dorsal view of a specimen natural size, with much magnified view of anterior portion below, and below this a similarly magnified view of the ventral aspect, excluding the limbs except the right cheliped.
- a.s., a.i.* The first and second antennæ.
- mx 1, mx. 2, mxp. 1, 2, 3.* First and second maxillæ; first, second, and third maxillipeds.
- prp. 5.* Last four joints of the fifth peræopod.
- plp. 1, plp. 4.* Rami of the first and fourth pleopods.
- The separate parts are drawn to a uniform scale.

## PLATE XXVA.

*Hymenosoma orbicularis*, Desmarest.

- n.s.* Dorsal view of female specimen, natural size. The other figures are much magnified, to a uniform scale.
- oc., a.s., a.i.* Eye, first and second antennæ.
- mxp. 1, 2, 3.* First, second, and third maxillipeds.
- prp. 5.* Last two joints of the fifth peræopod.
- The first antenna and the fifth peræopod are from a female specimen, the other appendages from a male of the same size.

## PLATE XXVB.

*Lysioerichthus edwardsii* (Eydoux and Souleyet).

- n.s.* Line indicating length of the specimen figured in lateral view.
- car.* Dorsal view of carapace, with portions of the eyes, first and second antennæ, and one of the medio-lateral spines projecting.
- pl.* Pleon from the third segment, as seen projecting between the postero-lateral spines of the carapace; part of hind margin much more highly magnified.
- a.s.* First antenna.
- mxp. 1, 2, 3.* First, second, and third maxillipeds, with distal part of first and third much more highly magnified.
- prp. 1.* First peræopod.
- urp.* One of the uropods.

## PLATE XXVIA.

*Calrinus talismani*, A. Milne-Edwards and Bouvier.*T.* The telson.*mx.* 2, *mæp.* 1, 2, 3. Second maxilla; first, second, and third maxillipeds.*plp.* A pleopod.

All the figures are drawn to a uniform scale.

## PLATE XXVIB.

*Eupagurus forceps* (Milne-Edwards).*mx.* 2, *mæp.* 2, 3, *plp.* Second maxilla; second and third maxillipeds; a pleopod.

All the figures on a uniform scale.

## PLATE XXVIC.

*Plagusia capensis*, de Haan.*mx.* 2, *mx.* 2 *juv.* Second maxilla of *P. capensis*, and to the same scale that of its immature form *Marestia elegans*.

## PLATE XXVID.

*Eupagurus modicellus*, n. sp.*car.*, *a.s.*, *a.i.* Frontal part of carapace, with eye, and first and second antennæ.*T.*, *urp.* Telson and uropods.*mæp.* 1, 3. First and third maxillipeds.*prp.* 1 *r.*, *prp.* 1 *l.*, *prp.* 2, 4, 5. First peræpod, showing the right chela in full from the inner side, and the same obliquely from the outer side with the two preceding joints; the left chela from the inner side, inner edges of the tightly closed fingers obscure; seventh joint of second peræpod; fourth and fifth peræpods.

All the figures to a uniform scale.

## PLATE XXVII.

*Gennadas kempi*, n. sp.*car.* Front of carapace flattened out.*T.* Dorsal view of telson.*oc.* Outline of eye.*a.s.*, *a.i.* First and second antennæ, the flagella imperfect.*m.*, *mx.* 1, *mx.* 2, *mæp.* 1. Mandible, first and second maxillæ, first maxilliped.*prp.* 3. Third peræpod.*plp.* 1, *plp.* 2. First pleopod with the petasma, second pleopod.*urp.* Uropod.

All the parts are drawn to a uniform scale of magnification, with addition of the telson's apex and the apex of the endopod of the second maxilla more highly magnified, in the latter case showing the crowded group of four curved spines as viewed from upper and under surfaces.

## PLATE XXVIII.

*Petalidium foliaceus*, Bate.*n.s.* Specimen partially figured above of the natural size.*car.*, *T.* Front part of carapace in lateral view; telson in dorsal view.*oc.* One of the eyes.*a.s.*, *a.i.* Basal joint of first antenna, and base of second with the scale imperfect at the apex.*m.* Mandible, with further enlargement of the cutting edge.

- mx.* 1, *mx.* 2, *mxp.* 2. First and second maxillæ and second maxilliped.  
*prp.* 1, *prp.* 5. First and fifth peræopods in part.  
*pet.* First pleopod of male with the petasma, one of the median plates omitted for simplicity.  
*plp.* 2. A second pleopod from a different specimen, probably a female.  
 Enlargement of parts to a uniform scale, except in partial figure of the mandible.

## PLATE XXIX.

*Nauticaris brucei*, n. sp.

- n.s.* Line indicating natural size of specimen figured in lateral view, slightly inclined to the right.  
*r., car.* Rostrum and frontal margin of one side of carapace, with two postocular median spines.  
*a.s., a.i.* First and second antennæ, flagellum of second only in part.  
*m., mx.* 1, *mx.* 2, *mxp.* 1, 2. One mandible and distal end of another, first and second maxillæ, and first and second maxillipeds.  
*mxp.* 3, *prp.* 1, 2. Third maxilliped, first and second peræopods.  
*prp.* 1, *prp.* 5. Terminal portions of the first and fifth peræopods.  
*T.* Telson, with distal portion more highly magnified, on a uniform scale with the apices of the first and fifth peræopods and all the mouth-organs except the third maxilliped. The whole telson and other separate parts are uniformly magnified on a lower scale. The dissections were not taken from the specimen figured entire.

## PLATE XXX.

*Phye scotix*, n. sp.

- n.s.* Lateral view of specimen, natural size.  
*T.* Dorsal view of telson, with further enlargement of its cleft apex.  
*a.s.* Peduncle of first antenna.  
*a.i.* Apex of scale of second antenna.  
*m., m., mx.* 1. The two mandibles and the first maxilla, with further enlargement of the maxilla's spine-margin.  
*mx.* 2, *mxp.* 1, 2, 3. Second maxilla and the first, second, and third maxillipeds.  
*prp.* 1, 2, 4, 5. First, second, fourth, and fifth peræopods, with further enlargement of the fingers of the second.  
*urp.* Apices of the branches of the uropod.  
 All the parts are magnified to a uniform scale, with a scale of further enlargement for the parts above indicated.

## PLATE XXXI.

*Phye rathbunæ*, n. sp.

- n.s.* Lateral view of specimen, natural size.  
*car.* Anterior portion of carapace.  
*T.* Telson in dorsal view, with further enlargement of its cleft apex.  
*a.s., a.i.* First antenna, and second to the base of the flagellum.  
*l.i., m., mx.* 1, 2, *mxp.* 2, 3. Lower lip, mandible, first and second maxillæ, second and third maxillipeds, with further enlargement of mandible, first maxilla, and second maxilliped.  
*prp.* 1, 2, 3, 4, 5. The five peræopods.  
*plp.* 1, *urp.* First pleopod and a uropod.  
 All parts magnified to a uniform scale, except the front of carapace, which corresponds with the further enlargements above specified.

## PLATE XXXIIA.

*Eucopia* sp.*prp.* 4. Sixth and seventh joints of fourth peræopod.*prp.* 5. Fifth peræopod.

## PLATE XXXIIB.

*Nematocarcinus lanceopes*, Bate.*r.* Rostrum, the tapering distal portion missing.*T.* Telson.*a.i.* Scale of second antenna.*mx.* 1. First maxilla, with apex much more highly magnified*mx.* 2, *mzp.* 1, 2, 3. Second maxilla; first, second, and third maxillipeds.*prp.* 1. First peræopod.

All parts magnified to a uniform scale, with the exception above mentioned.

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## ADDITION TO NOTICE OF MURSIA CRISTIMANUS (p. 272).

The third, finely illustrated, edition of CUVIER'S *Règne Animal* has two undated volumes on Crustacea. Each is entitled "*Les Crustacés. Avec un Atlas, par M. Milne-Edwards,*" with the additional word "Texte" in one volume, and "Atlas" in the other. Internal evidence makes it completely certain that the text is by LATREILLE, who died in 1833. But it is also clear that the text is independent of the plates, since it mentions the genus *Mursia* (p. 54) without attaching to it any specific name, and on p. 262 names *Caligus risculus*, Leach, for pl. 77, figs. 1, 2, 3, figures which MILNE-EDWARDS in his explanation of the plate distributes among three separate species of the genus. There may be evidence that pl. 13 of the atlas which records "*Mursica cristata*, Latr.," was published earlier than 1837, the year in which MILNE-EDWARDS gives a reference to it under the name "*Mursia cristiata*," but the atlas itself is silent on the point.—T. R. R. S., March 27, 1914.